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Columbia University

STUDIES IN CLASSICAL PHILOLOGY

THE PHILOSOPHICAL TERMINOLOGY
OF
LUCRETIVS AND CICERO

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OF

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BY

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To

THE MEMORY OF

MY FATHER

DE WITT TEN BROECK REILEY

PREFATORY NOTE.

THIS monograph contains a valuable account of the philosophical terminology with which Cicero and Lucretius respectively enriched the Latin language. Dr. Reiley has examined the prevailing theories regarding certain technical terms that belong to the materialistic philosophy of Greece and Rome, and by an acute examination of the evidence, both ancient and modern, has arrived at conclusions which constitute a distinct contribution to knowledge.

HARRY THURSTON PECK.

COLUMBIA UNIVERSITY,
May 15, 1909.



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LUCRETIVS AND CICERO.

PART I.

GENERAL VIEW.

CICERO and Lucretius created a philosophical terminology for the Latin language. They found their native tongue a clear and vigorous medium for the expression of the energies of a practical and objective people. They left it a fine instrument for the discussions of abstract and speculative philosophy.¹ In the hands of the Christian Fathers and later of the Schoolmen, this terminology was further enlarged and defined. And finally, through various

¹ We know that the credit for this literary feat was accorded to Cicero by his contemporaries. Anon. Gudianus Cod. 278, Cornelius Nepos in libro de historicis Latinis de laude Ciceronis: . . . quippe qui . . . philosophiam ante eum incomptam Latinam sua conformavit oratione.

learned and literary channels, it has passed down into many of the cultured tongues of the modern world, one of the priceless heritages of classical antiquity.

Seldom in the history of thought and of language is found such an interesting parallel as appears in this aspect of the work of Cicero and Lucretius. We see two of the keenest intellects of a brilliant age, each struggling independently of the other with the enormous difficulties of informing a concrete and objective language with the subtle and abstract ideas of an alien philosophy. The scope of the comparison is narrower than we could wish, for Lucretius concerned himself chiefly with the mechanical and physical side of Epicureanism, while Cicero, whose philosophical interests were largely ethical, passed over these elements of the system in rapid summary. When, however, the interests of the two thinkers touched, we see in full view, just as in the processes of a laboratory, their terminology in the very making. A study of the causes and influences operating to determine their choice of identical or different terms to express the same idea, should be full of informing interest

alike for the philosopher, the linguist and the psychologist.

Both the value and interest, however, of a comparison of the two terminologies are dependent upon the fact of their mutual independence. For, should it appear that either writer drew for his terms upon the other, or that both drew from a common Latin source, there would be little attraction or profit in the task of comparison. The death of Lucretius before the composition of Cicero's philosophical works establishes the independence of the former beyond question. In the case of Cicero, however, there are slight traces in his work of a certain literary influence exercised by Lucretius.¹ The question of Cicero's editorship of

¹ Compare, *e.g.*, the periphrastic use of **vis**: viz. **vis atomorum**, N.D. I 54; **v. serpentium**, id. I 101; **v. caloris**, id. II 25; **v. marmoris**, id. II 98; **v. auri**, Tusc. V 91; **v. ranunculorum**, Fam. VII 18; **v. lacrimarum**, Rep. VI 14; and **v. violenta leonum**, Lucr. III 296; **fortis equi v.**, III 8; **permissa canum v.**, IV 681; **v. animai**, 638. The same use of **natura** appears in both authors. Compare **natura animi**, N.D. I 23; **caloris naturam**, id. II 24; **alvi natura**, id. II 136; **naturam hominis**, Fin. V 33; with **aquae natura**, Lucr. I 281; II 232; **natura deum**, V 148; II 646; **rerum naturas**, I 710; **sensus natura**, I 962; **natura animantum**, I 194; **naturam corporis**, I 606; **animai na-**

the poem of Lucretius is, moreover, still an open one. Nevertheless, Cicero has given us such repeated evidence of his belief in the absolute originality of his own nomenclature that we may at least assume the fact as an hypothesis of our investigation. The possibility of either writer drawing his terms from the contemporary Latin Epicurean prose literature is equally remote. Granting for the moment what is uncertain, the existence of this literature before the death of Lucretius, we have the sincere and explicit statement of the poet that the work of creating a Latin terminology lay before him difficult and untried.

turam, III 456, etc. Mayor, however, on N.D. II 136, quotes similar periphrases from the Greek, viz. Plat. Tim. 45, τὴν τῶν βλεφάρων φύσιν; 74, τὴν τῶν νεύρων φύσιν. Phaedr. 44, ἡ τοῦ πτεροῦ φύσις. Arist. Part. An. III 1, ἡ τῶν ὀδόντων φύσις. For *vis*, too, cf. Il. Γ 105, Πριάμοιο βίην; B 658, βίη Ἑρακλεΐη, etc. Compare also Cic. N.D. II 49, **larga luce compleverit**, with Lucr. II 806, **larga cum luce repleta est**; V 281, **largus item liquidi fons luminis**. Also N.D. II 96, **impetum caeli moveri**, with Lucr. V 200, **quantum caeli tegit impetum ingens**. And further, N.D. II 26, **nive pruinaque concresceret**, with Lucr. III 20, **nix concreta pruina**. Finally Ac. II 122, **radicibus suis haereat**, with Lucr. III 325; V 554.

“nec me animi fallit Graiorum obscura reperta
difficile inlustrare Latinis versibus esse,
multa novis verbis praesertim cum sit agendum
propter egestatem linguae et rerum novitatem.”¹

As for Cicero, it would be passing strange to find him, with all his hate and contempt for the Roman Epicureans, resorting to them for assistance in turning his Greek. He has nothing too bad to say both of their subject-matter and of their style.² So far from depending upon them for his terminology, he has not even read their miserable handbooks.³

The spirit in which the two writers attacked the task of translation reveals the strongest contrasts. Cicero believed thoroughly in the richness and the capacity of the Latin and in

¹ Lucr. I 136–139. With this passage compare also Lucr. I 830–833; III 258–261; I 925–929; II 1022–1025.

² Ac. I 6; Tusc. IV 6, 7; II 7; III 33; Fin. III 40; Fam. XV 19, 2. Cf. Reid, Acad. Introd. p. 21.

³ Tusc. II 7, *Est enim quoddam genus eorum, qui se philosophos appellari volunt, quorum dicuntur esse Latini sane multi libri: quos non contemno equidem, quippe quos numquam legerim: sed quia profitentur ipsi illi, qui eos scribunt, se neque distincte neque distribute neque eleganter neque ornate scribere, lectionem sine ulla delectatione neglego.*

its entire adequacy and even superiority in rendering the Greek ideas. He says, **multoque melius haec notata sunt verbis Latinis quam Graecis, quod aliis quoque multis locis reperietur.**¹ This same conviction he has also expressed elsewhere: **Et quoniam saepe diximus, et quidem cum aliqua querella non Graecorum modo, sed eorum etiam, qui se Graecos magis quam nostros haberi volunt, nos non modo non vinci a Graecis verborum copia, sed esse in ea etiam superiores, elaborandum est ut hoc non in nostris solum artibus, sed etiam in illorum ipsorum assequamur.**² The idea occurs also in *De Natura Deorum*: **Quo in genere tantum profecisse videmur, ut a Graecis ne verborum quidem copia vinceremur.**³ Lucretius shows a spirit quite the opposite of that of Cicero. His complaints of the **patrii sermonis egestas** ring so often in our ears that the reiterated suggestion has created a distinct sentiment of sympathy for him in his dreary labors with his so-called indigent native tongue. We consequently enter upon our study with the expectation that the terminology of Lucretius may compare un-

¹ Tusc. III 10.² Fin. III 5.³ N.D. I 8.

favorably with that of the patriotic and optimistic Cicero. It should be said, however, that any reader who passes from the great Latin prose of the late Republic to a struggle with the obscure and decadent dialect of Epicurus, will hesitate to accord to Lucretius the consideration that he claims. Fine clay lay ready to the hands of a potter with the art to mold it.

It is the object of our investigation to examine, as far as the necessary limitations of so large an inquiry may permit, the degree of success attained by each philosopher in the creation of a terminology and the manner in which he achieved it.

I.

THE EMPLOYMENT OF GREEK WORDS.

A characteristic difference between the two terminologies lies in the employment of Greek words. Lucretius has made no statement as to the conditions on which he will admit them in his text. His obvious resolve is to employ all available resources for the exclusive use of Latin in his technical terminology. Cicero, on the contrary, has laid down certain rules

for himself. They are briefly as follows. He will use the Latin wherever possible. If the Latin is not available, he may employ the naturalized Greek. If this in turn fails him, he will permit himself the use of the foreign Greek.

verus Dicam, si potero, Latine; scis enim me Graece loqui in Latino sermone non plus solere quam in Graeco Latine, Tusc. I 15. Ut enim sermone eo debemus uti, qui innatus est nobis, ne, ut quidam Graeca verba inculcantes, iure optimo rideamur, sic, etc., De Off. I 111. Quin etiam Graecis licebit utare, cum voles, si te Latina forte deficient: . . . sed enitar ut Latine loquar, nisi in huiusce modi verbis, ut philosophiam aut rhetoricam aut dialecticam appellem, quibus, ut aliis multis, consuetudo iam utitur pro Latinis, Ac. I 25.

In the light of these declarations the statistics of the occurrence of Greek words in Cicero and Lucretius are surprising. In the philosophical works of the former I find 99 Greek words used in a philosophical sense.¹ In Lucre-

¹ Included in this list are all words carrying what might be construed as a scientific, psychological, ethical, or metaphysical meaning. Excluded therefore are the following: ἡσυχάζειν, Ac. II 93; σκοτεινός, Fin. II 15 (Lucr.

tius I find but 2.¹ It must be remembered, however, that the range of Epicurean inquiry was in itself comparatively narrow and that Lucretius limited this contracted scope still further by exploiting chiefly its mechanical and physical features. Therefore his need of a rich terminology was not so great as that of Cicero. Fewer words are needed to describe a physical system than one of psychology or of ethics.² The inquiries of Lucretius in psychology went no farther than a demonstration of the material nature of mind and the explanation of the phenomena of sensation and perception through the atomic efflux from the external object. He cared nothing for the abstractions of ratiocination which presented necessarily the greatest

"obscurus"); ἀγέλαστος, Fin. V 92; ἀποκατερῶν, Tusc. I 84; ἀκροστιχίς, Div. II 111; φιλιππίζειν, id. II 118; ἀποφθέγματα, De Off. I 104; θετικῶς, Para. 5; δαίμονας, Tim. XI; νεκρία, νεκυομαντεῖα, Tusc. I 37.

¹ Excluded from this list are Greek words used for manifestly literary device. Cf., e.g., Lucr. II 412, 505; V 334; IV 1140–1190. *Aer* and *aether* are also excluded, being already naturalized in the Latin.

² It is for this reason that the influence exercised by Lucretius on the formation of a Latin philosophical terminology must be conceded to be weaker than that of Cicero.

difficulties to a translator. Ethics, too, he scarcely mentioned. Cicero, on the contrary, in his many treatises and translations touched upon almost every phase of Greek speculative thought. He himself felt his disadvantage in philosophical composition as compared with the Epicureans. *Iam vero physica, si Epicurum, id est, si Democritum probarem, possem scribere ita plane, ut Amafinius. Quid est enim magnum, cum causas rerum efficientium sustuleris, de corpusculorum — ita enim appellat atomos — concursione fortuita loqui?* *Ac.* I 6. To make, therefore, a just comparison between the two writers we must eliminate from the list of Greek words occurring in Cicero, all terms that do not have some counterpart in Lucretius.

The Greek terms excluded from the comparison on these grounds are 72 in number. They afford an interesting illustration of the inherent infirmity of the Latin in forming compounds. The Greek list broke nearly in half; 38 of the terms were compound, 34 were simple. Of the 34 simple Greek words, Cicero turned with ease 26 into single, concise and adequate Latin terms. The remaining 8 of this group were turned by various devices, namely, by one or

more approximate equivalents, by a phrase or by a definition. Of the Greek compounds, however, Cicero succeeded in turning only 15 by single Latin terms, but he translated 23 by the various devices mentioned, or not at all. The list follows, assembled according to the preceding groups:

1. SIMPLE GREEK TERMS IN CICERO.¹

a. *Rendered by Single Latin Terms.*

ἀξία, *aestimatio*, Fin. III 20, 34. ἀργὸς² λόγος, *ignava ratio*, Fa. 28. βλάμματα, *detrimenta*, Fin. III 69. δόγμα, *decretum*, Ac. II 27, 29. εἰρωνεία, *dissimulatio*, Ac. II 15. ἥθος, *mores*, Fa. 1. θεωρήματα, *percepta*, Fa. 11. θύμωσις, *excandescencia*, Tusc. IV 21. ἰδέα, *species*, Ac. I 30; Tusc. I 58. καθήκον,² *officium*, Fin. III 20. κακία, *vitium*, Fin. III 39; *vitiositas*, Tusc. IV 34. λήμμα, *sumptio*, Div. II 108. λύπη, *aegritudo*, Tusc. III 61. μανία, *insania*, Tusc. III 11. μαντική, *divinatio*, N.D. I 55; Div. I 1. μεσότητες, *medietates*, Tim. VII. πάθος, *perturbatio*, Tusc.

¹ This list excludes all terms having a counterpart in Lucretius.

² Essentially simple.

IV 10. ποιότης, *qualitas* (coined), Ac. I 25. στεφάνη, *corona*, N.D. I 28 (*corona* occurs in Lucr. but not descriptive of the conceit of Parmenides). σωρείτης, *acerualis*, Div. II 11 (Cicero claimed that the word was naturalized). φαντασία, *visum*, Ac. II 18; I 40 (cf. *visio*, Ac. II 33). ψευδόμενος, *mentiens*, Div. II 11. φρόνησις, *prudencia*, De Off. I 153. χρήσιμος, *frugi*, Tusc. III 16. ὠφέλημα, *emolumentum*, Fin. III 33, 69.

b. Rendered by Various Devices.

ἀξίωμα, *fundamentum dialecticae*, Ac. II 95. κέντρον, *quasi functi instar*, Tusc. I 40. οἰκείον, *quod accommodatum ad naturam adparet*, Ac. II 38. ὀρίζοντες, *illi orbes qui caelum quasi medium dividunt et aspectum nostrum definiunt*, Div. II 92. ὄρμη, *appetitio, appetitus animi*, Ac. II 24; Fin. III 23 (cf. Fin. III 21, *conciliatio*). πολιτικόν, *quasi civile atque popolare*, Fin. IV 5, V 66. τελικά, [*bona*] *ad illud ultimum pertinentia*, Fin. III 55. σωφροσύνη, *temperantia, moderatio, modestia, frugalitas*, Tusc. III 16.

2. COMPOUND GREEK TERMS IN CICERO.

a. *Rendered by Single Latin Terms.*

ἄδηλα, *incerta*, Ac. II 54. ἀβλάβεια, *innocentia*, Tusc. III 16. ἀρρωστήματα, *aegrotationes*, Tusc. IV 23. δυσχρηστήματα, *incommoda*, Fin. III 69. ἐνάργεια, *perspicuitas*, *evidentia*, Ac. II 17 (either term is adequate). εὐκαιρία, *opportunitas*, Fin. III 45; *occasio*, De Off. I 142. εὐχρηστήματα, *commoda*, Fin. III 69. ζηλοτυπία, *obtreectatio*, Tusc. IV 18. κατάληπτον, *comprehendibile*, Ac. I 41. κατάληψις, *comprehensio*, Ac. II 17, 31, 145. μελαγχολία, *furor*, Tusc. III 11 (Cicero turns *μανία* by the same word). μισάνθρωπος has the quality of *inhospitalitas*, Tusc. IV 25. ὁμολογία, *convenientia*, Fin. III 21. πρόσληψις, *adsumptio*, Div. II 108. φιλογυνία, *mulierositas*, Tusc. IV 25.

b. *Rendered by Various Devices.*

ἀδιαφορία, *neutram in partem moveri*, Ac. II 130 (cf. however, ἀδιάφορον = *indifferens*, Fin. III 53). ἀθαμβία, *animus terrore liber*, Fin. V 87. ἀκατάληπτος, *quod comprehendi non potest*, Ac. II 18. ἀναλογία, *comparatio propor-*

tiove, Tim. IV. ἀντίχθων, Tusc. I 68 (untranslated). ἀπόδειξις, conclusio argumenti, Ac. II 26. ἀποπροηγμένα, remota, reiecta, Fin. III 51, 52. ἐνδελέχεια, quasi quaedam continuata motio et perennis, Tusc. I 22. ἐξωτερικόν, populariter scriptum, Fin. V 12. ἐπιγεννηματικόν, posterum quodam modo et consequens, Fin. III 32. ἐποχή, adsensionis retentio, Ac. II 59 (in Ac. II 148 Cicero does not attempt a translation). ἐτυμολογία, verborum explicatio, Ac. I 32 (veriloquium, Top. 35, rejected for notatio). εὐδοξία, bona fama, Fin. III 57. εὐθυμία, Fin. V 87 (untranslated). εὐταξία, ordinis conservatio, De Off. I 142. κατηγορήματα, Tusc. IV 21 (untranslated). κατόρθωμα, rectum aut recte factum, Fin. III 24, 45; illud rectum, Fin. IV 15; perfectum officium, rectum, De Off. I 8. κατόρθωσις, recta effectio, Fin. III 45. μισόγυνος, [habens] odium mulierum, Tusc. IV 25. παράδοξα, admirabilia contraque opinionem, Fin. IV 74. προηγμένα, promota, producta, praeposita, praecipua, Fin. III 51, 52; IV 72. συγκατάθεσις, assensio, approbatio, Ac. II 37. συμπάθεια,¹ iste quasi consensus, N.D. III 28; [illud] ex coniunc-

¹ For possible Lucretian correspondence, see under ἁρμονία, p. 20.

tionē naturae et quasi concentu atque consensu, Div. II 34; **continuatio coniunctioque naturae**, Div. II 142.

In addition to this particular demonstration of a comparative weakness of affinity in Latin words to react upon each other in the formation of stable compounds, we may note several points in passing with reference to the special work of Cicero. We see the fine conscience of the scholar in his feeling for the right word, the stubborn clinching of the man with his problem, the meticulous hesitation of the open-minded Academic in the absolute acceptance of any precise term. Note his oft-repeated **quasi** and **quidam**. He has not, however, in every case spoken Latin when he could, that is to say, when the Latin alone would have carried the idea exactly. And, further, when we see the results in the aggregate, his work looks a bit like a glossary rather than an effort to free the Roman reading public from the Greek.¹

We may now turn to the group of Greek words occurring in Cicero having also their counter-

¹ **Magnificum illud etiam Romanisque hominibus gloriosum, ut Graecis de philosophis litteris non egeant**, Div. II 5.

parts in Lucretius.¹ This group falls naturally into subdivisions similar to those of the group previously discussed, namely: (1) Greek terms turned by Cicero with a single Latin equivalent, (2) Greek terms turned by Cicero with various devices. The list follows of the Greek terms in Cicero appearing in translation in Lucretius also.

1. TURNED BY CICERO WITH SINGLE LATIN EQUIVALENT.

The number in this group is 16.² In every case Lucretius also has succeeded in turning his Greek by a single Latin term.³

ἀπειρία, *infinities*, Fin. I 21; *infinities*, N.D. I 73; Lucr. *infinities*, (adj.) I 616, for metrical reasons.

¹ By "counterpart" I mean only such words, phrases, etc., as it is possible to suppose that Lucretius may have offered as equivalents to the Greek.

² ἀσώματον, N.D. I 30, is omitted, as it rests under the suspicion of interpolation.

³ In two cases, ἀπειρία and πρόνοια, the idea in Lucretius appears through a different part of speech. In the case of *voluptas* and *voluntas*, his reference to the Greek is not certain.

ἄτομος, see Part II, p. 35, for full discussion.

βούλησις, *voluntas*, Tusc. IV 12. Lucr. uses *voluntas* frequently, *e.g.*, II 258, 261. It is not certain that he was thinking of the Greek.

εἶδωλα, *imagines*, Fin. I 21; *spectra*, Fam. XV 16; *similia*, N.D. I 105; *fluentes visiones*, N.D. I 109. *Simulacra et imagines*, N.D. II 76, implies no distinction in meaning between the terms. The usage illustrates Cicero's keen instinct for variety. Lucretius uses for εἶδωλα and τύποι *imagines* and *simulacra*, according to the demands of the metre. Cf. Munro, Lucr. IV 30 ad loc. *Imago* does not appear in the gen. plur. *Simulacra* occurs only in the nom. and acc. plur., with 3 exceptions, viz. *simulacrum*, II 112; IV 149; *simulacris* (dat.), IV 334. The other synonyms of Lucretius are, *species*, IV 602; *formae*, IV 104, 135; *effigiae*, IV 85, 105. Lucretius renders the atomic efflux as *aestus*, IV 219; VI 925. Cicero uses *transitio*, N.D. I 109; *accessio*, N.D. I 105, translating, with Lucretius, ἀπόρροιαί, Diog. L. X 46. *Aestus* is nearer than *transitio* or *accessio* to ἀπόρροιαί, suggesting the motion of water.

ελάχιστον, *minimum*, Fa. 22. Lucr. id. II 244. The reference is to the nature of the

declinatio or **clinamen**, not to the *ἐλάχιστον* or **minima pars** of the atom.

ἔννοια, Ac. II 22, 30; Tusc. I 57. See below under *πρόληψις*.

ἡγεμονικόν, **principatus**, N.D. II 29. **Lucr.** **regimen**, III 95, **consilium vitae regimenque**.

ἡδονή, **voluptas**, Fin. II 12. **Lucr.** uses **voluptas**, but his reference to the Greek is uncertain, *e.g.*, II 3. He must have had Epicurus' definition of **ἡδονή** in mind when he wrote II 18, 19, [**natura**] **mente fruatur | iucundo sensu cura semota metuque**. Cf. Diog. Laert. X 128, *ἐπὶ τὴν τοῦ σώματος ὑγίειαν καὶ τὴν τῆς ψυχῆς ἀταραξίαν, ἐπεὶ τοῦτο τοῦ μακαρίως ζῆν ἐστὶ τέλος . . . τὴν ἡδονὴν ἀρχὴν καὶ τέλος λέγομεν εἶναι τοῦ μακαρίως ζῆν*.

κόσμος, **mundus**, Tim. X. **Lucr.** *id.*, I 1054; II 181. The Stoic and Epicurean **mundus** formed two distinct concepts. The *μετακόσμια* where the gods dwell, whence flow the **imagines**, is translated by Lucretius with the phrase, **sedes sanctas in mundi partibus ullis**, V 147. Cicero turns neatly by **intermundia**, Fin. II 75, N.D. I 18.

νοσήματα, **morbi**, Tusc. IV 23. **Morbus** is also the term of Lucretius in a discussion pre-

liminary to a description of the plague at Athens, VI 1090. He may have been thinking therefore of the Greek, though certainly not in the Stoic sense.

πρόληψις, *notitia*, *notio*, Ac. II 30; N.D. I 43, 44, 45; *anticipatio quaedam deorum*, N.D. I 43; *antecepta animo rei quaedam informatio*, id.; *insitae vel potius innatae cognitiones*, id. 44; *praenotio deorum* id.; *primae notiones*, id. 46; *informatae deorum, notiones*, id. II 13; *conformatio animi*, id. I 105; cf. Top. 27; *praesensio notioque*, N.D. II 45. These terms and phrases seem to render both *ἐννοιαί* and *προλήψεις* with no practical distinction. Etymologically, however, *προλήψεις* may be recognized in *praenotio*, *praesensio*, *anticipatio*. *ἐννοιαί* appears in *informatio*, *conformatio*, *notitia*. Lucretius renders *πρόληψις* by *notities* when speaking of the conception of the gods produced in the mind by the efflux of the *εἶδωλα*, V 182, 1047.

πρόνοια, *prudencia*, *providencia*, N.D. I 18; II 58, 73. Lucretius gives the same idea by the *adv. divinitus*, I 116, 150, 736; II 180, V 198.

σοφία, *sapientia*, De Off. I 153. Lucr. id. V 10.

σοφός, *sapiens*, Fin. II 24. Lucr. id. II 8.

σφαῖρα (certain reading), *globus*, N.D. II 47.
 Lucr. id. V 69, 472, 665.

σφαιροειδές, *globosum*, Tim. VI. Lucr. id. II 469.

2. TURNED BY CICERO WITH VARIOUS DEVICES.

The number in this group is 11. Here again the honors are fairly divided.

ἀντίπους, *qui adversis vestigiis stent contra nostra vestigia*, Ac. II 123. Lucr. also resorts to description, I 1052–1067.

ἀπάθεια, *Pyrrho autem ea ne sentire quidem sapientem, quae ἀπάθεια nominatur*, Ac. II 130; Lucr. VI 24 ff. He is describing the ἀταραξία of Epicurus, Diog. Laert. X 82, Us. p. 30.

ἁρμονία, *concentio*, Tim. VIII 24. Cicero's use of the term shows etymological carelessness; cf., e.g., Div. II 34, 142; N.D. III 18; where the various terms seem equivalent to ἁρμονία or συμπάθεια indiscriminately. Note also N.D. III 28; Div. II 124. Lucretius is completely defeated, and, although laughing at the term, takes the Greek word over without translation, III 100, 118, 130–134; IV 1248. His *habitum* (ἔξις) *quendam vitalem corporis*,

III 99, is a definition rather than a translation. There is no occasion for the poet's apology. **Harmonia** is a musical word and admirable in the hexameter. Cicero also uses the single Greek term, N.D. III 27.¹

είμαρμένη, *illa fatalis necessitas*, N.D. I 55. **Lucr. necessum** (adj.), II 289, 468, 710.

ζωδιακός, *orbis signifer*, Div. II 89. **Lucr. id.**, V 691. Cicero in his *Aratea* uses the Greek term as already naturalized, 317-318. Lucretius therefore deliberately rejects a term occurring in one of his poetical models, showing a decidedly superior taste. Cicero's use of the word in Div. II 89 and *Aratea* 317-318 is due to an instinct for learned display.

ἰσονομία, *aequabilis tributio*, N.D. I 50; **aequilibras**, 109. **Lucr.** attempts no translation. He states the doctrine II 569-580; VI 542.

κύκλος, *circulus aut orbis*, N.D. II 47. **Lucr. orbis**, V 510.

περὶ δυνατῶν, *de eo quod possit fieri aut non possit*, Fa. 1. **Lucr. quid possit oriri | quid**

¹ Lucretius refers to the harmony of the body, Cicero to that of the universe.

nequeat, finita potestas denique cuique | quam
sit ratione atque alte terminus haerens, I 75-77.

στερέμνια. Epicurus used the Greek term to indicate the solid realities, perceptible objects, in distinction from forms of matter imperceptible to the senses, more especially as opposed to the streaming *εἶδωλα*. Their essential quality Cicero denotes by *firmitas*, *soliditas*, N.D. I 49. To the same intent he uses the phrases *nihil concreti*, *nihil solidi*, *nihil expressi*, *nihil eminentis*, N.D. I 75, opposing them to *species pura*, *levis*, *perlucida*, id. The same idea occurs in his *habitu solido*, N.D. I 123, *viscerum soliditatem*, N.D. II 18. *Soliditas* is metrically impossible in Lucretius. The idea, however, appears in various forms. Note *condenso corpore*, VI 102; *contexta magis condensaque*, IV 57; in *medio ut propulsa suo condensa coiret*, V 486; *condensa queant apparere*, VI 466. *Solidus* in the singular, without exception, is used by Lucretius to denote the perfect impenetrability of the atom. *Solidissima* also appears I 565, 951. In only two instances does Lucretius use *solidus* in the sense of solid (*στερέμνια*) as opposed to lighter forms of matter, IV 570, V 927. Cicero also employs *solidus* in the sense of the absolute solidity of

the atoms, N.D. II 93, showing in his technical uses of the word a contamination of the two ideas. See Part II, p. 47.

τέλος, *vel summum vel ultimum vel extremum bonorum*, Fin. I 42; III 26. *Lucr. summum bonum*, VI 26.

φυσιολογία, *naturae ratio*, Div. I 90; II 37; N.D. I 20. *Lucr. id.* I 148.

The task of examining the Greek terms in Lucretius will be much briefer than in the case of Cicero, for but two are found, namely **ἁρμονία** and **ὁμοιομέρεια**. The latter proves too much for the powers of Lucretius and he frankly admits it, I 830-834. The honors are decidedly with Cicero. He shuns altogether the **sesquipedale verbum** and turns the doctrine neatly with the phrase, **particulas, similes inter se, minutas**, Ac. II 118. This instance, however, is the only case where Cicero uses only the Latin and Lucretius is forced to adopt the Greek.

The results so far obtained justify the following conclusions. Cicero shows in general a greater wealth and facility of expression than Lucretius. In spite of this facility he has not in all cases "spoken Latin when he could."

He shows scrupulous and occasionally pedantic efforts to keep faithfully to his Greek. His familiar hesitation between several terms has marred the technical rigor of his terminology. Lucretius, on the other hand, has shown himself to be his own best argument in disproof of the **patrii sermonis egestas**, since with simple Latin he has succeeded, in the main, as well as Cicero in turning the Greek ideas. His terminology shows a simplicity, firmness and rigor not so marked in Cicero.

The causes producing this wide differentiation of terminology do not in all cases submit to the processes of generalization. To attempt to force all cases of divergence under the exact operation of well-defined laws would be to yield to a common but premature tendency of our latter day to classify all the phenomena of human consciousness and activity under specific rules o' thumb. There are, notwithstanding, certain large influences controlling the choice of terms by Cicero and Lucretius and a brief consideration of these is offered.

II.

PROSE AND POETIC DICTION.

The modifications of the terminology of the two writers, through the nature of their diction, are too easily recognized to require here large amplification. The demands of a poetic diction caused the simplicity of the Lucretian terminology. Cicero's prose, on the other hand, permitted his elaborate complexity. It was the task of Lucretius to clothe the exact and detailed exposition of his jejune philosophy in the language of a lofty poetry. Through this necessity his habit was formed of choosing simple, familiar words to carry his technical meanings. **Res** and **concilium** are familiar illustrations of this manner. The prose form of Cicero, however, gave him the utmost freedom to use any word he chose, provided that it was clear and accurate.

Nothing illustrates more clearly the operation of this respective limitation and license than a comparison of the words occurring for the first time in the two writers, and which in many cases may have been coined by them.

A coined term in Lucretius would be, as a rule, for his poetic diction an uncouth barbarity. Accordingly, with a few exceptions, his new words are used for various literary devices. Archaisms appear, also the ritualistic fourth declension, crashing Aeschylean words and those that for some peculiar strangeness of their own are useful to the poet's art. Thus among the words found only in Lucretius and his imitators we have **augmen**, **adaugmen**, **momen**, **vexamen**, **circumcaesura**, **variantia**, **aegror**, **maximitas**, **pestilitas**, **dispositura**, **differitas**, **refutatus**, **emissus**, **commutatus**, **opinatus**, **formatura**, **contages**, **adhaesus**, **vivata**, **dementit**, **tardescit**, **exos**, **perfluctuat**, **intactile**, **repetentia**, **torrescere**, **disiectus**, **transpectum**, **transpiciuntur**, **nixatur**, **articulat**, **contrectabiliter**, **adopinamur**, **frustramen**, **praemetuenter**, **interfodiunt**, **interdatus**, **interfugere**, **vitaliter**, **diffusilis**, **aborisci**, **interstinguere**, **auxiliatum**, **summatum**, **confulta**, **egigni**, **stinguere**, **primigenum**, **adiectus**, **auctus**, **formamentum**. Only nine distinctively philosophical words must be added to the list; namely, **glomeramen**, **clinamen**, **sensiferos**, **sensiscere**, **conciliatu**, **repetentia**, **retinentia**, **sensilis**, **propritim**.

The coined words of Cicero all appear in the interest of his philosophical terminology. With such a license the vocabulary of the latter would naturally show greater wealth and diversity than that of the poet Lucretius. As typical of the words occurring for the first time in his philosophical writings, we have, probably, **effectio**, **efficientia**, **patibilis**, **impetibilis**, **qualitas**, **individuum**, **beatitas**, **beatudo**, **moralis**, **comprehendibilis**, **perspicientia**, **convenientia**, **informatio**.

III.

PROSE AND METRICAL FORM.

Lucretius was further hampered in the choice of words by his verse structure. To this demand of his hexameters are undoubtedly due some of the words in the preceding list, although they belong none the less to that group on the ground of the unusual effect their strangeness must have had on the Roman ear. Among the words whose counterparts in Cicero were metrically impossible in hexameter verse, we find in Lucretius **differitas**, **compositura**, **dispositura**, **maximitas**, **satias**, **variantia**, **aegror**, **pestilitas**, **sensilis**, **regimen**, for the more usual

forms found in Cicero respectively, namely, **differentia**, **compositio**, **dispositio** (rhet. term), **magnitudo**, **satietas**, **varietas**, **aegritudo**, **pestilentia**, **sentiens**, **principatus**. To **positura**, the corresponding form **positio** does not seem to occur in Cicero. To this list may be added some of the many words in Cicero which, though metrically possible for Lucretius in the nominative singular, could not be used in the oblique cases. Thus Lucretius has **clinamen**, **vexamen**, **refutatus**, **emissus**, **commutatus**, **opinatus**, **contages**, **contagium**, **adhaesus**, **concursum**, **visus**, **titillare**, **concilium**, **mobilitas**, for the forms which appear in Cicero respectively, **declinatio** and **inclinatio**, **vexatio**, **refutatio**, **emissio**, **commutatio**, **opinatio**, **contagio**, **adhaesio**, **concursum**, **visio**, **titillatio**, **concretio**, **velocitas**, **celeritas**. The archaic and ritualistic fourth declension affected by Lucretius contrasts strongly with Cicero's staccato prose forms in **-io**. The unusual effect of the ending **-amen** also attracted Lucretius. In his choice of **concilium** he probably liked its simplicity and found it suited to the nature of his thought. With this group may be classed the Lucretian gen. **animantum** for Cicero's **animantium**, also his **omne** and use of

the adjective **infinitus** where Cicero uses **infinitas** (*ἀπειρία*). With the preceding use may be compared the **aeternus** and **aeternitas** of Cicero, and the archaic **necessum** of the former with the **necessitas** of the latter. Likewise for Cicero's familiar phrase **fortuita concursione**, we have in Lucretius, **sua sponte, forte, temere** II 1059. Compare also the rare abl. **impete**, of Lucretius, with the regular form, **impetu**. A similar instance occurs in his use of the gen. and dat. plur., **principiorum** and **principiis**, for his regular term, **primordia**, metrically impossible in those cases. Going farther afield on the literary side, we might extend this list indefinitely.

IV.

TEMPERAMENTAL AND SCHOLASTIC INFLUENCES.

The individual temperament of each man as affected by the peculiar attitude of his particular philosophical school, had, without doubt, great influence on the tenacity with which each seized and held a term.

We see in Lucretius the ardent adherent of Epicurus, the master whose last command to his

votaries was, τῶν δογμάτων μεμνήσθαι.¹ His disciples stored their minds with the literal words of his κύριαι δόξαι² through the rote iteration of his doctrines. The absolute belief in the literal truth of the words of Epicurus may be paralleled in later history only by the Protestant tenet of the literal inspiration of the sacred canon. This claim of Epicurus for the absolute acceptance of the very letter of his teachings was acknowledged by Lucretius, a man in every fiber of his mind and imagination the potential bigot. One single idea controlled his mind, one single purpose dominated his life. We see him working day and night to reveal to men his own possession, the absolute, the whole and perfect truth. He looks down with intense compassion upon others wandering and lost in their ignorance. Nor is this attitude characteristic of Lucretius alone, although probably greatly exaggerated in him by the passionate intensity of his personal quality. It was notoriously characteristic of the whole Epicurean clan. Cicero's irritation at their supreme con-

¹ Diog. Laert. X 35, 83, 139-154.

² Diog. Laert. X 16 ; Eckman, "Controversial Elements in Lucretius," p. 15.

fidence is abundantly plain in the dry humor with which he marks the interlocutor Velleius: **Tum Velleius fidenter sane, ut solent isti, nihil tam verens, quam ne dubitare aliqua de re videretur, tamquam modo ex deorum consilio et ex Epicuri intermundiis descendisset, N.D. I 18.**

Both the character and philosophical tenets of Cicero when compared with those of Lucretius, present the strongest contrast. We see Cicero hesitating and uncertain in his political attachments, fluctuating in his personal friendships, a sensitive medium for every fresh impression. He had, more than any other Roman of his day, the open rationalistic temperament of the fourth-century Greek. His mind had furthermore received a very subtle and severe training in its critical and judicial faculties. As a result he was the most Academic of the Academics. The tenet of the impossibility of the absolute perception of any form of truth was alike a necessity of his temperament and the product of his training and career.

These fundamental and opposing traits of character of the two men are clearly reflected in their style, and, what is here our only concern,

in their terminologies. The clear and simple rigor of Lucretius stands in strong relief against the rich, resourceful, elaborate, yet for all that, somewhat indefinite terminology of Cicero. The **quasi** and **quidam** of the latter, his habit of double translation, his qualifications, alternatives, frequent shifts of meaning, all betray the timorous translation of the Academic. **Titillare sensus**,¹ says Lucretius quite simply and confidently for Epicurus' *γαργαλίζειν*, but Cicero gropes after his word with the Academic **quasi**, or uses a phrase to carry the Greek, throwing the responsibility at the same time upon Epicurus: **has leviores dicis voluptates quibus quasi titillatio (Epicuri enim hoc verbum est) adhibetur sensibus**.² And again, **si ea sola voluptas esset quasi titillaret sensus**.³

As in the broader manifestations of literary form and expression, so too even within the narrower limits of the choice of a technical terminology, we see the operations of the universal law, *le style c'est l'homme*.

¹ II 429.

² N.D. I 113.

³ Fin. I 39.

PART II.

STUDIES OF SPECIAL GROUPS OF TERMS.

ANY special and intensive study of the choice and employment of Latin terms by Lucretius and Cicero in the exposition of Epicureanism should be approached through an effort to understand the exact use made by Epicurus of the Greek originals. We know that he saw the importance of a precise system of nomenclature and that he intended to adopt one and hold to it with accuracy.¹ The discovery, so far as existing sources will permit, of the extent to which he succeeded in this resolution must form an important element in the following studies of special groups of terms occurring in our Roman philosophers.

¹ Diog. Laert. X 37, 38.

CHAPTER I.

THE ATOMS.

I.

THE ATOMS OF EPICURUS.

1. ἄτομος is the special and particular term of Epicurus for the ultimate unit of matter characteristic of his physical system. Explicit statements are made by the ancients to this effect, Scholiasta Dionysii Thr. p. 660, 25 Bekk., Us. p. 129; Aetius I 3, 18, p. 285 sq. D. (Stob. ecl. ph. 10, 14 Plut. I 3, 25), Us. p. 191; Hippolytus philos. 22, p. 572, 3 D., Us. p. 191; Achilles isag. 3, p. 125^a Pet., Us. p. 191; Simplicius in Arist. phys. Z i init. f. 216^r, Us. p. 192. Important evidence is offered that ἄτομος was the term of Epicurus κατ' ἐξοχὴν by the record in Diogenes Laertius of the title that Epicurus gave to his treatise on the elements of his physical system, περὶ ἀτόμων καὶ κενοῦ, X 27.

The term is used to express all the various phases and relations of ultimate matter, considered *per se* in reference to its own properties of size, weight, shape, indivisibility, as bodily existence contrasted with void, as the element composing and begetting the perceptible *res*, etc. Epicurus uses it with greater frequency than any other term to denote his atoms and devotes it exclusively to that end.

Epicurus did not invent the term, but adapted it from Leucippus and Democritus.¹ In addition to the testimony of the fragments, it is good corroborative evidence that later commentators, in setting forth the systems of Leucippus and Democritus, tacitly ascribe to the latter the use of the term.² Gassendi ascribed its invention to Epicurus,³ but this position is untenable.

The feminine gender of the term is probably due to its original agreement with *φύσις*, not *οὐσία*, which is a peripatetic not an Epicurean

¹ Diels, *Frag. der Vorsokrat.*, Leucippus B 1; Democritus B 9, 117, 125.

² Diels, Democritus A 37, 38, 42, 43, 47, 48, 49 (B 125), 50, 55, 82, 124.

³ Gassendi, *animadvers.* in lib. X, Diog. Laert. pp. 179 ff.

term. The combination is actually found in Diog. Laert. X 41. The name of the contrasting element, ἡ ἀναφῆς φύσις, also favors this assumption.

The term *ἄτομος* appears frequently in adjective form also and occasionally as a neuter substantive in partitive agreement, Diog. Laert. X 42.

The question naturally arises why Epicurus chose, as his special and particular term for the atoms, a word which seems to represent but one phase of the atom and but one element of its constitution, namely indivisibility. Bindseil¹ thinks that Lucretius rejected the term because of this limitation in the nomenclature of Epicurus. Quite the contrary is true, as the absolute indivisibility of the atom is the crux of the Epicurean physical system. This hypothesis is essential to the doctrine of the indestructibility of matter, the dualism of void and matter, and hence, too, an essential postulate of Epicurean kinetics. It serves as an explanation of the permanence of species, the rotation of birth, growth, decay, death and regeneration.

¹ Bindseil, *Ad Librum Primum Lucreti*, p. 11.

In a word, upon the simple solidity of the atom depends the whole physical system of Epicurus. It is for this reason that Epicurus adopted *ἄτομος* as his special and particular term.

2. *Σώματα* occurs with the greatest frequency after *ἄτομος* to denote the atom. Like the latter, it appears in all the phases and relations of ultimate matter. Special preference is shown for *σώματα* to indicate bodily existence contrasted with the void.¹ The term does not show the exclusive technical use of *ἄτομος*, for Epicurus uses it freely in various different senses; such as the perceptible *res*, the physical organism of man, body as opposed to its attributes, and as a general term. It does not appear that Epicurus felt any obscurity resulting from such a varied use. Bindseil seems to infer the contrary, as he makes the statement that Epicurus occasionally uses the expression *τὰ πρῶτα σώματα*.² I have searched the documents carefully and do not find this expression anywhere in the

¹ Diog. Laert. X 86, Us. p. 36; Schol. Ep. ep. I 39, Us. p. 99; Plut. adv. Col. 13, p. 1114*, Us. p. 124; Sext. emp. adv. dogm. III (Math. IX) 333, Us. p. 125; Plut. adv. Col. 11, p. 1112*, Us. p. 125.

² Ad Lib. Prim. p. 12.

fragments of Epicurus.¹ Did Bindseil turn **corpora prima** back into the Greek? Dr. Merrill,² though evidently following Bindseil, states with greater accuracy that "the Epicureans" used the expression. For this statement there is authority, as the phrase occasionally appears in later commentators on the Epicurean system.³

Σώματα does not occur in Epicurus and his commentators in the singular with the meaning of atom. The singular is uniformly *ἄτομος*.

3. **Σπέρματα**. — The word wherever occurring in the letters of Epicurus has always the meaning of the atoms, Diog. Laert. X 38, 74, 89. It is a curious fact that no statement of the occurrence of *σπέρματα* as a synonym for the atoms is made by modern editors in commenting on the **semina** of Lucretius, although they must

¹ But cf. Diels, *Frag. der Vorsokrat.*, Democritus A 47, *Δημόκριτος τὰ πρῶτά φησι σώματα κτλ.*, also Diog. Laert. X 69 which may constitute an occurrence in Epicurus.

² Merrill, *Lucr.* I 55 ad loc.

³ Aetius I 12, 5, p. 311 D. (*Plut.* I 12, 3 *Stob. ecl. ph.* 14, 1), *Us.* p. 195; *Plut. adv. Col.* 8, p. 1111^a, *Us.* p. 204; *Galen. de element. sec. Hippocr.* I 2 t. I, p. 418 K, *Us.* p. 205. Cf. also *Dem. and Leucipp.*, *Simp. in Arist. phys.* Z 1 init. f. 216^r, *Us.* p. 192.

have been entirely aware of the correspondence of the terms.

4. "Οὔκος. — The opinions of scholars are very diverse in regard to the use made by Epicurus of this word. Bindseil¹ does not include it among his list of terms for the atom. Polle,² on the other hand, admits the term and Munro³ concurs. Giussani⁴ stands for the use of ὄκος in the sense of molecule. Brieger finds ὄκος in Diog. Laert. X 69, used clearly of the atom, but criticises Epicurus for his loose use of the term elsewhere in the sense of the **minimae partes** of the atom. Giussani⁵ stands against Brieger on this point. He claims that ἐλάχιστον is the term used by Epicurus for the **minima pars** of the atom, while ὄκος, he says, is the **minima pars** of the perceptible **res**, or in other words, ὄκος is the molecule. The truth of the matter seems far, as yet, from demonstration; but a glance at the few passages in which the word occurs may be worth while.

¹ Ad Lib. Prim. p. 12.

² De Art. Vocab. p. 14.

³ Munro, Lucr. I 55 ad loc.

⁴ Studi Lucreziani, p. 58 ff.

⁵ Studi Lucreziani, p. 78, App. II, note on p. 58.

"Ογκος first appears in Diog. Laert. X 52, 53. The problem of sensation is under discussion. The ὄγκοι of the passage may be considered as a form of εἶδωλα, and, as they are clearly indicated to be of like character to the substance from which they have emanated, they are, in the modern sense at least, of a molecular constitution. Whether Epicurus intended by the use of the word ὄγκοι to describe them as of a molecular constitution, is another question. The occurrence in Id. X 54 has no technical significance. The next occurrence is in Id. X 56, 57. The question at issue in the passage is whether πᾶν μέγεθος may be predicated of the atoms and resolves itself into the question of the infinite divisibility of matter. Giussani's criticism of Brieger seems just, that the latter in calling the ὄγκοι of this passage the *minimae partes* of the atom must take, against the meaning and usage of the Greek, the πεπερασμένον σῶμα to indicate the atom. Giussani's own conclusion, however, that the ὄγκοι are molecules, is somewhat dogmatic and not entirely convincing.¹ The

¹ Studi Lucreziani, p. 78, App. II, note on p. 58.

ἄπειροι ὄγκοι are surely not the *cacumina* of the atom, as the *ὄγκοι* are clearly conceived as separable magnitudes composing the congeries of the *res*. I see no imperative reason, on the other hand, for the conclusion of Giussani, nor is it clear why the atom would not fill the requirements of the sense as well or even better than the molecule. The word occurs again in Id. X 69. Here Giussani fairly joins issue with Brieger, as the latter calls the *ὄγκοι* atoms, the former molecules. The expressions *ἄθροισμα συστήῃ* and *μερῶν* perhaps help along Giussani's notion, as they hint at a homogeneous substance implying a molecular constitution. Judgment on the passage must be suspended. The passage from Id. X 101, 102 still leaves the matter in doubt, as the meaning of either atoms or of molecules for *ὄγκοι* would make what meaning the passage contains. Other occurrences of *ὄγκος* in quotations from Epicurus or in statements regarding the philosophy of the Epicureans contribute nothing to a clearing up of the difficulty.

It may be said, by way of summary, that it is not possible to determine the precise use of *ὄγκος* in Epicurus, until it be decided whether

Epicurus did or did not grasp the concept of the molecule. If it be granted that Epicurus did have this concept, the evidence is slightly on the side of Giussani that *ὄγκος* appears in the fragments with the meaning of the molecule.

5. *Ἀρχαί*. — Polle believes contrary to most authorities¹ that *ἀρχαί* in the language of Epicurus did not mean the atoms; but in several passages of good authority the word apparently has this sense, namely, Diog. Laert. X 41; Aetius I 3, 18, pp. 285 sq. D. (Stob. ecl. ph. 10, 14 Plut. I 3, 25), Us. p. 191; Achilles isag. 3, p. 125^a Pet., Us. p. 191; Alexander Aphr. quaestt. I 13, p. 52 Speng: Us. p. 206. It is to be noted, however, that the word occurs with this meaning of the atoms only when the statement of identification with the atoms is specifically made. This fact may indicate a consciousness in the mind of Epicurus of the already well-established use of the word in the sense of the original substance or the primal essence, first so used by the Ionic cosmologists and often found in Aristotle

¹ Bindseil, Ad. Lib. Prim. p. 12; also Lucr. I 55, Munro, Giussani, Merrill ad loc.

and Plato, especially in the plural. It is possible that Democritus himself used the term in this way, as we find in the later expositions of his system certain statements to the effect that he included in his ἀρχαί both body and void.¹ In Epicurus the term, used philosophically, always designates body opposed to void. These facts may explain the rare occurrence of the term in Epicurus and the further fact that it never appears in the sense of the atoms without definition. We should look for a much more frequent use as it is the only term, except possibly στοιχείον, that indicates through its own root meaning the formative substance. The rare use of the term ἀρχή, as well as that of στοιχείον, indicates the tendency of Epicurus to exclude from his terminology such words as had been previously devoted to a philosophical use by his predecessors or by his contemporaries.

6. Στοιχείον. — The discussion of στοιχείον as a term in Epicurus for the atom is naturally associated with that of ἀρχή, since similar questions obtain in regard to it. Polle is again

¹ Diels, Frag. der Vorsokrat., Democritus A 38, 44.

arrayed against the same authorities with the exception of Giussani, who seems to have said nothing on the subject. The former declares that *στοιχείον* was not a technical term for the atom in Epicurus, as another meaning was assigned to it. What the other meaning was he does not seem to state.

Στοιχείον appears first as a philosophical term in Plato.¹ The meaning of the word as found there is that of the component parts of matter, the original elements. Back of this philosophical sense lay the root meaning of the word signifying a series or the component parts of anything. In language it seems to have been an elementary sound as expressed by a letter (*γράμμα*).² From the time of Aristotle the word came to be applied particularly, though not exclusively, to the four elements of Empedocles, — earth, air, fire and water.³ The term would, therefore, if used rigidly in this sense, be strictly equivalent to *ἀρχαί* only among the Empedocleans. To the Atomists and Stoics these elements are secondary and to the

¹ Tim. 48 B; Polit. 278 C; Theaet. 201 E, 20 D.

² Arist. Poët. 20, 2; Plat. Crat. 424 D; Theaet. 202 E.

³ Ac. I 26; Reid ad loc.

Peripatetics tertiary. At no period, however, of Greek philosophy was the distinction between ἀρχή and στοιχεῖον rigidly observed, and Aristotle himself frequently employed the terms with inconsistency.¹ The term was therefore not preëmpted exclusively by any philosophical school before the time of Epicurus.

The test of στοιχεῖον as a term for the atoms of Epicurus must be the same as that applied to ἀρχαί; namely, whether the word appears alone in that sense, without specific definition. This proof is not found. In the single instance of its use denoting material substance in the letters of Epicurus the text is defective, Diog. Laert. X 86.

Munro's note on Lucr. I 55 is puzzling. He says, "Lucretius does not here mention **elementa** which is frequently found in his poem and answers to one of the commonest Greek words, στοιχεῖα." The pertinence of Munro's comment would lie in the frequent occurrence of στοιχεῖα in Epicurus, but the term in the latter is conspicuously rare.

7. Σχήμα. — The word deserves mention, as

¹ Ac. I 26; Reid ad loc.

it suggests itself as the probable prototype of the Lucretian **figura** or **forma**, which occasionally appear as synonyms for the atom. **Σχῆμα**, however, never occurs in this sense in the fragments of Epicurus. I do not find, furthermore, either **εἶδος** or **ιδέα**. The origin of the Lucretian use must therefore be sought elsewhere.

8. **Τὰ στερέμνια**. — The word is to be noted under a discussion of the terminology of the atom, only because of the curious error of Polle,¹ who classes it with the synonyms of **ἄτομος**. He quotes Diog. Laert. X 46 as an illustration of the use of the word. A glance at the passage shows that the word is used in quite a different sense. **Τὰ στερέμνια** are the perceptible, solid bodies, **τὰ φαινόμενα**, from which flows the atomic efflux of the **εἶδωλα**. Note also Diog. Laert. X 48, 50; Sextus emp. adv. dogmat. I (Math. VII) 207, Us. 180; id. II (Math. VIII) 63 sq., Us. p. 187. Were the evidence of the Greek insufficient, Cicero's use of the term which he ascribes to Epicurus would give the meaning beyond dispute, N.D. I 49. Professor

¹ De Art. Vocab. p. 14.

Merrill¹ has taken over from Polle without question or verification the statement of the former that τὰ στερέμνια is a synonym of the atoms.

9. Ὕλη calls for special comment. It is given by a number of the editors of Lucretius as the Greek original of Epicurus for the **materies** and **materia** of Lucretius. A careful and repeated search of the original Epicurean documents² has not brought to light any occurrence of the term used as a prototype of the Lucretian **materies**.³ The word is not found in the fragments of Leucippus and Democritus.⁴ The appearance of ὕλη in a philosophical sense⁵ occurs first in Aristotle as one of the four causes of his οὐσία; namely, ὕλη, εἶδος, τὸ κινεῖν, τὸ τέλος. From the time of Aristotle the term occurs frequently in philosophical terminology.

¹ Merrill, *Lucr.* I 55 ad loc.

² Usener's *Epicurea*, Lipsiae, 1887.

³ The only occurrences that I find are *Diog. Laert.* X, 93, 112; *Simp. in Arist. phys.* Δ 4 (p. 211^b 7), f. 133^r, *Us.* p. 194.

⁴ Diels, *Frag. der Vorsokrat.*, Berlin, 1906.

⁵ τὸ ὑποκείμενον γενέσεως καὶ φθορᾶς δεκτικόν, *Gen. et Corr.* 1. 4, 7; τὸ ἐξ οὗ γίγνεται, *Metaph.* 6. 7, 2.

SUMMARY.

Only three words in the known Greek of Epicurus occur absolutely in the undoubted sense of atoms, namely, *ἄτομος*, *σώματα*, *σπέρματα*. The meaning of *ὄγκος* is as yet undetermined. *Ἀρχαί* and *στοιχεία* designate the atoms only when specifically defined. *Σχήματα*, *τὰ στερέμνια* and *ὕλη* are not found in this sense.

II.

THE ATOMS OF LUCRETIUS.

Polle states that Lucretius deliberately spurned the terms *αἱ ἄτομοι* and *τὰ στερέμνια*.¹ As we have already seen, the Greek term *τὰ στερέμνια* never signified the atoms. It is hard to understand the source of Polle's amazing blunder and still more puzzling to account for Professor Merrill's acceptance of his statement. The failure of Lucretius to naturalize or translate *ἄτομος*, Polle accounts for by the freedom of Lucretius from the verbal constraints of his

¹ De Art. Vocab. p. 14.

Greek originals and by the admirable flexibility of the Latin in developing a native philosophical idiom. Bindseil offers the ingenious explanation, previously mentioned, that Lucretius rejected *ἄτομος* and chose **primordia** as his technical term because the term **primordia** suggested more clearly atomic function, namely, to be the begetting elements of the **res**. Both explanations are inadequate. Investigation shows that Lucretius, when permitted by his poetical and metrical form, follows his Greek with faithfulness. Bindseil's explanation is also open to question, since it will be shown under the special treatment of the term **primordia**, that it is at times used absolutely and without apparent reference to its function as the formative element. The true explanation has already been suggested in the discussion of the methods of Lucretius and Cicero in the employment of Greek words. The former carefully avoids all Greek scientific words unless forced to their use by the **patrii sermonis egestas**. This avoidance is due of course to the exigencies of a poetical form.

1. **Primordia** is the distinctive and particular

term of Lucretius for the atoms. Its use is confined to this meaning,¹ and it expresses all the relations and functions of ultimate matter. The method of Lucretius is clearly seen in the development of this word as a technical term. "Ατομος was not available for his poetical form. He therefore fell back upon the translation of ἀρχαί which appeared, though qualified, in Epicurus and was the established term of other philosophers for ultimate substance. To avoid, however, the lack of distinction present in ἀρχαί, Lucretius chose not **principia**, which would involve the same obscurity as the Greek, but **primordia**, using the genitive, dative and ablative of **principia** for purely metrical reasons. He reserves **principium** for the designation of other philosophical systems.² The case in point is a nice illustration of the difficulties of Lucretius in creating a philosophical nomenclature and of his mastery of those difficulties. Poetical form and patriotic pride in his native tongue rebelled against the adoption of ἄτομος. The

¹ With the exception of I 712, 753, 765.

² I 707, 740.

scientist and philosopher could not endure the promiscuous **principia**, good enough as a variant but of insufficient precision for the distinctive and proper term. **Primordia** was the compromise which satisfied poet, patriot and scientist. **Primordia** may therefore be regarded as the Lucretian counterpart of the ἀρχαί of Epicurus; but Lucretius has stamped the word with a technical intensity probably, though not certainly, lacking in the ἀρχαί of Epicurus. **Primordia** never occurs in the singular.

Lucretius was evidently conscious of the component elements of **primordia**. This fact is seen by the resolution **ordia prima**, IV 28. **Exordia** is another indication, though in this case the meaning of atoms seems to be carried only by the whole periphrasis **cunctarum exordia rerum**, or **exordia prima**.¹ **Exordia** alone never means the atoms.²

2. **Principium**.—The important facts in regard to the use of **principium** have already been noted under **primordia**. The term was used

¹ II 333; III 31; IV 114; III 380; V 677.

² II 1062; V 430, 471. Also, from the figure of weaving, I 149, V 331.

by Lucretius merely as an expedient for the unmetrical oblique cases of **primordia**. In I 707, 740 Lucretius, with scholarly discrimination, uses the term in the general philosophical sense of ἀρχή and ἀρχαί, for the στοιχεῖα of Empedocles.¹ Bindseil and Polle must be reversed in giving **principia** as occurring in Lucretius. The term occurs only in the genitive, dative and ablative.

3. **Corpora** bears almost a complete correspondence to σώματα. The term occurs with great frequency in the meaning of atoms, but must not be considered for that reason the proper term of Lucretius. The frequent occurrence is rather due to its adaptability to the verse form. Like σώματα, **corpora** expresses all the phases and relations of ultimate matter, but unlike σώματα, does duty, since ἄτομος is barred in Lucretius, in denoting the single atom.² **Corpus** occurs in the poem in such varied "lay" uses that Lucretius evidently

¹ It must be admitted that in the same passage Lucretius uses **primordia** very loosely, I 712, 753.

² I 600; II 484, 487. Polle must be reversed in claiming exact correspondence of **corpora** with σώματα, for this reason.

at times felt the ambiguity and qualified the term: thus, **corpora prima**, I 61, 171, 510, 538; **corpora certa**, I 521, 526; **certissima corpora**, I 675; **genitalia**¹ **corpora**, I 167; II 548; **genitalia materiai corpora**, II 62. The appearance of **prima** in the sense of the atoms is due to the momentum of the phrase **corpora prima**, II 313; IV 186. Lucretius usually employs **corpus** like the $\sigma\omega\mu\alpha$ of Epicurus to indicate the opposite of void and immateriality, I 420, 443, 482. The rare adjective **corporeus** is developed on this meaning.

4. **Corpuscula** appears, though very rarely,² as a term for the atoms in Lucretius. The term

¹ **Genitalia** is a poetical and post-Augustan word whose counterpart I cannot find in the Greek of Epicurus. The word seems to hark back to certain pre-Socratic cosmologists who explained nature as a sort of physiological generation by a series of births and deaths. The word seems out of place when dealing with the mechanical and chemical combinations of the Atomists. Cf. Professor Woodbridge on the Earliest Gk. Philosophy, *Phil. Rev.* Vol. X, No. 4, July, 1901. Cf. *Lucr.* I 203. Also **exitialis**, II 569. In the expression **genitalia materiai corpore**, the root meaning of **materia** is suggestive.

² I have found the word five times: II 153, 529; IV 199, 899; VI 1063.

is an admirable one, differentiated as it is by its diminutive form from **corpora** and in consequence free from the ambiguities of the latter. It is difficult to understand why Lucretius has not employed the word with greater frequency. His scant liking for it may possibly be due to the inferiority of Amafinius as a philosophical expositor, for this Roman Epicurean seems to have been regarded as the proprietor of the term.¹ Again, Lucretius may have been doubtful of the poetical value of the word owing to its comic use, Plaut. Cas. 4, 4, 23. I find no corresponding word for **corpuscula** in Epicurus. This fact, too, may have had its influence upon Lucretius.

5. **Semina** needs little comment, as it is in all respects the exact counterpart of *σπέρματα*. It is the only term for the atoms that has a complete correspondence with its Greek original. The greater frequency with which it appears over the Greek term is probably due, in the case of Lucretius, to its poetical availability. The use

¹ Cic. Ac. I 6. The Epicurean prose literature may have been published before or after the death of Lucretius. **Primus cum primis**, V 336, may refer to poetry without reference to prose expositions.

of the term suggests a reminiscence of the notion held by the old cosmologists of a physical origin of the universe. Lucretius uses **semina** only as the forming element.

6. **Elementa** appears in literary Latin for the first time in Lucretius. The meanings in which it occurs are "beginnings," "letters of the alphabet" and finally "atoms." The old derivation of the word from **el em en** seems to have stronger grounds for support than other theories, and brings the word closer to the meaning of its prototype *στοιχεῖα*.¹ The immediate question in regard to the technical use of **elementa** is from what philosopher or school Lucretius took over *στοιχεῖα* into Latin in the form of **elementa**. Professor Merrill's statement that "the expression *στοιχεῖον* does not occur in the genuine fragments of Epicurus" may be reversed by Diog. Laert. X 86. But perhaps Professor Merrill does not consider these letters genuine. Polle infers that the term was taken over from Empedocles by Lucretius. This theory is not tenable for two reasons. First,

¹ J. B. Greenough, *Harvard Studies*, Vol. I, 1890; Diels, *Elementum*; Quint. 3, 3, 13; Cic. *Ac.* I 7; Sen. *Ira* II 18.

if true, we should reasonably expect Lucretius to use the term **elementa** when describing the Empedoclean system I 705 ff. He does not do so but uses instead **principium** and **primordia**. Secondly, *στοιχείον* does not occur in the genuine fragments of Empedocles. The term we do find there is *ρίζωματα*.¹ This fact does not of course prove that Empedocles did not employ the expression *στοιχείον*;² but it is sufficient evidence to show the weakness of Polle's assumption.

It is, on the whole, a reasonable view to hold that Lucretius took over the term *στοιχείον* through the Latin **elementum** from Democritus, possibly through Epicurus, in the original sense of the Greek, namely "letters." The word *στοιχείον* appears in the genuine fragments of Democritus only in this sense.³ Lucretius uses the word **elementum**, as Greenough shows, with this significance in the earlier occurrences

¹ Diels, *Frag. der Vorsokrat.*, Empedocles B 6. Cf. *Lucr.* II 103, **radices**.

² The evidence for Empedocles' use of *στοιχείον* is derived from secondary sources. Diels, *Frag. der Vorsokrat.*, Emp. B 7, 8, 10, 96, 109, 135, 159.

³ Diels, *Frag. der Vorsokrat.*, Democritus B 19, 20.

in the poem. Not until the third book¹ does he use the word in the technical sense of "atoms." The development of the word as a term for the atoms may have been therefore due to the unconscious influence of his own simile, I 196 ff. "The idea," says Mr. Greenough, "of calling his atoms **elementa** after the Greek had apparently not occurred to him until after his unconscious figure of the A, B, C's had accustomed his mind to that conception." It remains possible that in the lost works of the Atomists the word *στοιχεῖα* may have occurred in the specific and unqualified sense of the "atoms," and that Lucretius translated the word directly with that meaning.

7. **Figurae** appears occasionally in the plural equivalent to the atoms, although usually indicating their form. It would be reasonable to expect **figurae** to be a translation of the *σχήματα* of Epicurus, but *σχήματα* in Epicurus does not mean the atoms. Democritus uses occasionally *ιδέα*, and *εἶδος*² for the atoms,

¹ III 244. In II 981 he refers to "the component parts of the atoms, as existing under a supposition that he rejects."

² Diels, *Frag. der Vorsokrat.*, Democritus B 141, 167.

words stamped later by peculiarly Platonic and Aristotelian meanings. These forms, as used in Democritus, may be assumed as the prototypes of the Lucretian use of **figurae** for the atoms. It is just possible, however, that we may have here a transfer of thought illustrating the effect of a certain psychological momentum. **Figurae** occurs in the sense of atoms only after a recent use of **figura** or **forma** applied in their proper senses to the constitution of the atom, or in the later books where the meaning of **figura** in the sense of atom has become established.

8. **Particula** is a term certainly appearing for the atoms in Lucr. IV 776 and perhaps in III 708 and IV 261. It is used in a different sense in II 833 and III 665. I have not found a corresponding word for it in the Greek.

9. **Materia, Materies**. — The words appear first in Lucretius in a philosophical sense. The original meaning of **materia** is the same as that of $\tilde{\upsilon}\lambda\eta$, namely material, especially the timber of a tree. The explicit statement or tacit assumption of a number of Lucretian editors is that Lucretius is translating $\tilde{\upsilon}\lambda\eta$ from Epi-

curus.¹ There is no direct evidence for such an assumption, as *ἔλγ* is not found as a synonym for the atoms in the genuine fragments of Epicurus. This fact does not prove that Lucretius did not take his word from Epicurean sources, for *ἔλγ* may have occurred in the lost *περὶ φύσεως* or in the *μεγάλη ἐπιτομή* of Epicurus. It does call into question, nevertheless, the accuracy and care with which certain of the editors of Lucretius have handled their Greek sources. It is also entirely possible that Lucretius used the term through his own reminiscence of the Peripatetic nomenclature or that he adopted it from some Academic enchiridion.

With **materia** in Lucretius occurs the variant **materies** in the nominative and accusative cases. The nominative of **materia** does not occur, probably because of metrical inconvenience. The terms are used in Lucretius as collective expressions for the atoms or as the formative element (cf. **mater**) of matter without, necessarily, any implication as to its constitution.

¹ Bindseil makes the explicit statement and Munro implies it. Merrill assigns *ἔλγ* to "the Epicureans."

Tohte's criticism¹ that Lucretius has violated a strict terminology in I 503-634 is based on the assumption of the strict use of the term as the forming element, the matter of things. Other terms, however, have been found to interchange somewhat in their application. For example, **primordia** occurs in I 1110 as body opposed to the void, and **corpora rebus**, I 579, appears for the regular **primordia rerum**. In the same way **materies** may be used of the atoms as opposed to the void, by a shift quite in the manner of Lucretius. Giussani's justification² of the usage in this passage is therefore hardly necessary. He notes the use of **materiai concilium** for **corporis** or **corporum concilium** which, he states, is not used by Lucretius. The reason for the non-occurrence of the phrase is probably a metrical one. The Latin phrase is a translation of the technical *σύνκρισις* of Epicurus, and, as such, the Latin words should be written together. **Materiai concilium** needs no other explanation.

¹ Tohte, *Lucr.* I 483-598. 1889.

² *Studi Lucreziani*, p. 42.

SUMMARY.

Eleven terms in Lucretius are found with the sense of "atoms," namely, **primordia**, **ordia prima**, **prima**, **principiorum** (is), **corpora**, **corpuscula**, **semina**, **elementa**, **figurae**, **particulae**, **materia**. Of these, **corpora** and **semina** alone correspond to their Greek prototypes, *σώματα* and *σπέρματα*. **Primordia**, **ordia prima**, **prima**, **principiorum** (is), are scientific terms developed out of the still nascent technicality of *ἀρχαί*. The same thing is probably true of **elementa** in relation to *στοιχεῖα*. **Corpuscula** and **particulae** have no known Greek originals. **Figurae** has a shadowy antecedent in *εἶδος*. **Materia** is probably taken from alien philosophical sources.

III.

THE ATOMS OF CICERO.

Cicero in choosing terms for the atoms keeps closer than Lucretius in his Latin version to the known Greek of Epicurus, but appears inferior to him in invention. The complaints of Lucretius of the **patrii sermonis egestas** and the belief of Cicero in the resources of the Latin

language would lead us to expect something quite different. We should also expect an Epicurean to keep more closely to the Greek of his master than did the freebooting Academic. The causes which operated in the few cases noted where Lucretius swerved from his Greek models, were his poetical language and metrical form. To these may be added the desirability of a diversity of terms to vary and relieve the monotony of the long and tedious verse treatment. None of these conditions affected Cicero.

1. **Atomus**, as in Epicurus, is the special and particular term of Cicero for the ultimate unit of matter. Cicero naturalized the word in the Latin, through which it has passed into modern scientific nomenclature. He defined the term **atomos id est corpora individua propter soliditatem**, Fin. I 17. The use of the term is entirely identical with that of Epicurus.

2. **Individuum** appears first in literary Latin in Cicero and was probably coined by him to translate the Greek *ἄτομος*. It is used for the single atom, N.D. I 65, as well as in the plural N.D. I 49; Ac. II 55. It appears as a substantive or in agreement with **corpora**, N.D. I 71, 110; II 93; Fa. 22; and **corpuscula**,

N.D. I 67. It is strange that Cicero with such a term available should have felt the need of **atomus** at all, especially when the use of the latter violated the law he laid down for himself: **Dicam, si potero, Latine**, Tusc. I 15, and again, **sermone eo debemus uti, qui innatus est nobis**, De Off. I 111. Lucretius seems here to have lacked invention. He surely needed a term for his atoms that would in itself denote their indivisible constitution. Whether **individuum** in verse would have been tolerable to a Roman ear, there is no way to tell. We cannot know, therefore, whether Lucretius failed in ingenuity or whether he deliberately rejected the term.

3. **Corpuscula**. — Cicero derides the term as used by Amafinius Ac. I 6. He resorts to it, for all that, four times without apology, N.D. I 66, 67; II 94; Tusc. I 22. As in Lucretius the plural only is found.

4. **Corpora**. — Three points may be noticed differentiating slightly the Ciceronian from the Lucretian use of this term. (a) **Corpus** does not occur in Cicero as the single atom. The naturalization of **atomus** makes this use unnecessary. (b) The term **corpora** is frequently qualified by **individua**, not occurring in Lucretius. (c) The

singular of **corpus** regularly indicates matter organized in contradistinction to the idea of matter unformed and ultimate indicated by **materia**. The use of **corpora** is otherwise identical with that of Lucretius.

5. **Materia** is the term of Cicero for original and unformed matter. **Corpus** is usually his term for matter organized. The origin of his use of the word **materia** is undoubtedly to be found in the Aristotelian $\epsilon\lambda\eta$, which was probably of common occurrence in the handbooks of the New Academy. The term **materia** cannot be regarded as a synonym of the atoms. It occurs but once in a discussion of the Epicurean system, *Fin.* I 18. The reference in the passage is to the original forming substance without necessary implication of its atomic constitution.

The form **materies** is not used in the philosophical treatises of Cicero. On the other hand, **materia** occurs but twice in the orations, namely, *Phil.* II 42; XI 21. **Materies** is used instead, as *Stoff*, *Gelegenheit*.

Dr. Reid's note on *Ac.* I 24, 6 is difficult. He says: "We have in the present passage what is probably the earliest use of **materia** to render the physical sense of $\epsilon\lambda\eta$. [The word does

not seem to occur at all before Cicero's time in any but the literal sense of 'building material.']"

Has Dr. Reid forgotten Lucretius? The **De Rerum Natura** was probably written nearly a decade before the **Academica**.

SUMMARY.

Four words in the Latin of Cicero occur with the meaning of "atoms," namely, **atomi**, **individua**, **corpora**, **corpuscula**.

CHAPTER II.

VOID AND SPACE.

I.

USAGE OF THE GREEK TERMS BY EPICURUS.

THREE views may be presented of the use made by Epicurus of the Greek terms ἀναφῆς φύσις, κενόν, τόπος, and χώρα. Stated in their simplest form, these views are as follows:—

A. Epicurus gave to each term a distinct technical sense and held to these distinctions with consistency.

B. Epicurus used the terms synonymously, **sine ullo discrimine.**

C. Epicurus, by his use of the terms, distinguished between the ideas of void and space. His application of the terms is occasionally inaccurate, but the general distinction is clear. This third view is, linguistically considered, a middle course between the first and the second.

Let us examine these opinions briefly in the order of their statement.

A.

Epicurus gave to each of the terms *ἀναφής φύσις*, *κενόν*, *τόπος* and *χώρα* a distinct technical sense, and held to these distinctions with consistency.

There is evidence that this view was more or less current in antiquity. We have a passage from the doxographus Aetius pointing this way, viz.: Plut. Epit. I 20, Diels, *Doxographi Graeci*, p. 317, οἱ Στωικοὶ καὶ Ἐπίκουρος διαφέρειν κενὸν τόπον χώραν· καὶ τὸ μὲν κενὸν εἶναι ἐρημίαν σώματος, τὸν δὲ τόπον τὸ ἐχόμενον ὑπὸ σώματος, τὴν δὲ χώραν τὸ ἐκ μέρους ἐχόμενον, ὥσπερ ἐπὶ τῆς τοῦ οἴνου πιθάκνης. There is, however, an objection to the acceptance of the passage as bearing upon the immediate question, inasmuch as Stobaeus, in quoting the same, omits the name of Epicurus. Aetius, Stob. ecl. I, 18, 4, Diels, *Doxographi Graeci*, p. 317 (*Ζήνων καὶ οἱ ἀπ' αὐτοῦ*) διαφέρειν κτλ. This omission raises the question whether Aetius attributed these distinctions to Epicurus. It is answered in the negative, I think, by the statement of Aetius,

quoted a little later by Stobaeus, Ecl. I, 18, 4, Diels, *Doxographi Graeci*, p. 318, Ἐπίκουρος ὀνόμασιν παραλλάττειν κενὸν τόπον χώραν. Since the attribution of the definitions to Epicurus is so doubtful, it is not necessary to examine them here.

A passage of much greater importance is found in Sextus emp. adv. Math. X (dogmat. IV) 2, Us. p. 350, κατὰ τὸν Ἐπίκουρον τῆς ἀναφούς καλουμένης φύσεως τὸ μὲν τι ὀνομάζεται κενόν, τὸ δὲ τόπος, τὸ δὲ χώρα, μεταλαμβανομένων κατὰ διαφόρους ἐπιβολὰς τῶν ὀνομάτων, ἐπεὶ περ ἡ αὐτὴ φύσις ἔρημος μὲν καθεστηκυῖα παντὸς σώματος κενὸν προσαγορεύεται, καταλαμβανομένη δὲ ὑπὸ σώματος τόπος καλεῖται, χωρούντων δὲ δι' αὐτῆς σωμάτων χώρα γίνεται. κοινῶς μέντοι φύσις ἀναφῆς εἴρηται παρὰ τῷ Ἐπικούρῳ διὰ τὸ ἐστερηῆσθαι τῆς κατ' ἀντίβασιν ἀφῆς. The passage is of much moment in our investigation, as upon its evidence the advocates of the view now under consideration build their argument.¹ Let us then examine the statement more closely. Ἀναφῆς φύσις, whatever it may be, has three phases and changes its name in accordance with its change

¹ Cf. Polle, *De Art. Vocab.* p. 17.

from one phase to another. Thus, this same nature when devoid of all body, is *κενόν*; when occupied by body, is *τόπος*; when bodies are passing through it, is *χώρα*. What then is this mysterious chameleon *ἀναφῆς φύσις*? Obviously, void is intended, considered in its widest sense, the second element of the universe. If we use the term with this meaning, we have it explicitly stated that void, when it is occupied by body, or when it is not-void, is *τόπος*. Again, void, when bodies are passing through it, or when it is partly void and partly not-void is *χώρα*. But such a system of definition seems sheer nonsense. We must retrace our steps, therefore, and find some meaning for *ἀναφῆς φύσις* that will appear as a positive, permanent characteristic in all three of its so-called phases. Now the only permanent, immanent quality common to *κενόν*, *τόπος*, and *χώρα*, using the term as defined by Sextus, is cubic extension. Can *ἀναφῆς φύσις* bear this meaning? Clearly not, for its determining quality, as indicated by its name and further described by Sextus, is intangibility;¹ but the

¹ διὰ τὸ ἐστερηθῆσθαι τῆς κατ' ἀντίβασιν ἀφῆς.

characteristic of cubic extension is capacity, τὸ περιέχον. Taken in the latter sense, ἀναφῆς φύσις becomes a misnomer. Taken in the former sense, it involves a contradiction. For these reasons, a priori, we should not expect to find these four Greek terms used by Epicurus with the distinctions of meaning stated by Sextus.

Sufficient has come down to us of the writings of Epicurus to furnish additional evidence of the extreme improbability of his use of these distinctions. A passage including all the terms in close collocation occurs in Ad Herod. 40, Us. p. 6, τόπος δὲ εἰ μὴ ἦν, ὃν κενὸν καὶ χώραν καὶ ἀναφῆ φύσιν ὀνομάζομεν, οὐκ ἂν εἶχε τὰ σώματα ὅπου ἦν οὐδὲ δι' οὗ ἐκινεῖτο, καθάπερ φαίνεται κινούμενα. Here we have a jumble of terms thrown together with the utmost carelessness. τόπος appears as the primary form, while ἀναφῆς φύσις is ranked among its own narrower phases. Again, the supposed function of τόπος, namely, τὰ σώματα ὅπου ἦν, and the supposed function of χώρα, namely, δι' οὗ ἐκινεῖτο, seem to be predicated of the whole list.

A study of the individual terms leads us to the same conclusion.

Ἀναφῆς φύσις, with the exception of the passage previously quoted, seems to be used by Epicurus in the sense ascribed to it by Sextus emp. Ad Pyth. 86, Us. p. 36, τὸ πᾶν σώματα καὶ ἀναφῆς φύσις ἐστίν. Note also Schol. Dionys. Thr. p. 660, 25 Bekk., Us. p. 129, κενὸν ἐστὶ φύσις ἀναφῆς, τουτέστιν ἀψηλάφητος. The adjective appears without the substantive φύσις in the two following passages: Plut. adv. Col. 13, p. 1114^a, Us. p. 125, ὀνομάζεται δὲ ὑφ' ὑμῶν ἀναφῆς καὶ κενὸν καὶ ἀσώματον. Plut. adv. Col. 16, p. 1116^a, Us. p. 345, τὸ ἀναφῆς κενόν. These are the only occurrences of the term that I find in the fragments of Epicurus. Setting aside, then, the passage occurring in Ad Herod. 40, the use of ἀναφῆς φύσις agrees with the definition of Sextus. We should not look, however, for a divergence in this term, which would naturally bear the meaning that Sextus assigned.

Κενόν does not agree with the definition of Sextus. The word occurs 17 times in the fragments of Epicurus, that is to say, in passages where the quotation is probably literal. In 10 of these instances κενόν is used in the larger

sense of ἀναφῆς φύσις.¹ I do not find it explicitly in the narrower sense, ἔρημον σώματος, although the two ideas are very similar and may well be identified. In 5 of the remaining instances κενόν appears in what Sextus would call the χώρα phase,² and once in the sense of τόπος.³ The remaining instance occurs in the careless jumble of Ad Herod. 40, previously mentioned.

The inference is just that in the use of κενόν Epicurus did not hold closely to the definition of Sextus emp. This fact should be noted especially in the case of κενόν, where the "lay

¹ κενόν = ἀναφῆς φύσις, Ad Herod. 42, Us. p. 7, τῷ μεγέθει τοῦ κενοῦ; ib. τὸ κενὸν ἀπειρον; Ad Herod. 44, Us. p. 8, ἢ τε γὰρ τοῦ κενοῦ φύσις; ib. αἰδίων τῶν ἀτόμων οὐσῶν καὶ τοῦ κενοῦ; also, Ad Pyth. 89, Us. p. 37; Sext. emp. adv. dogm. III (Math. IX) 333, Us. p. 125; Plut. adv. Col. 11, p. 1112^e, Us. p. 125; Schol. Dionys. Thr. p. 660, 25 Bekk., Us. p. 129; Sextus emp. adv. dogm. I (Math. VII) 213, Us. p. 181; Aetius I 3, 18, p. 285 sq. D. (Stob. Ecl. ph. 10, 14 Plut. I 3, 25), Us. p. 191; Sextus emp. adv. dogm. II (Math. VIII) 329, Us. p. 193.

² κενόν = χώρα, Ad Herod. 42, Us. p. 7, ἐφέρετο κατὰ τὸ ἀπειρον κενόν; ib. 46, Us. p. 10; ib. 61, Us. p. 18; ib. 67, Us. p. 22, τὸ κενὸν . . . κίνησιν μόνον δι' ἑαυτοῦ τοῖς σώμασι παρέχεται; also Ad Pyth. 90, Us. p. 38.

³ κενόν = τόπος, Ad Herod. 42, Us. p. 7, εἰ τε τὸ κενὸν ᾗ ὠρισμένον, οὐκ ἂν εἶχε τὰ ἀπειρα σώματα ὅπου ἐνέστη.

meaning" of the word would naturally suggest the technical intensity with which it should be used.

Τόπος offers the best test of the definitions of Sextus, for it occurs with greater frequency than *χώρα* and like the latter term would not indicate by its ordinary meaning the technical intensity which Sextus said it possessed. If Epicurus, then, used this term as *ἀναφῆς φύσις καταλαμβανομένη ὑπὸ σώματος*, he would do it with conscious deliberation. With the question so stated, the evidence of the fragments of Epicurus is emphatically against the statement of Sextus. **Τόπος** appears 6 times with a technical sense in the probably literal quotations from Epicurus. Of these 6 passages, I find but one in which the word may be said to be used with the meaning attributed to it by Sextus.¹ Furthermore, this passage is the one whose literal quotation is most open to doubt. In the remaining passages² the meaning is equivalent to void or

¹ Sextus emp. adv. dogm. I (Math. VII) 213, Us. p. 182.

² Ad Herod. 40, Us. p. 6; Ad Pyth. 89, Us. p. 37, *ἐν πολυκένῳ τόπῳ*; Ad Pyth. 114, Us. p. 53; Plut. adv. Col. 11, p. 1112^e, Us. p. 125; Schol. Epic. ep. I 40, Us. p. 125.

space or both. The specific meaning of the word in these passages will be discussed later. The determination of its sense is not essential to the present argument, for it is abundantly plain that it is not what Sextus meant by *τόπος*.

Χώρα.—The sole evidence for this term is found in Ad Herod. 39, from which a determination of its precise meaning is impossible. Since *κενόν* has already appeared five times as void with matter moving about in it, the conjecture is reasonable that the origin of the definitions of Sextus was in the operations of his own imagination. We met, at the outset of our study, another quite different attempt to dispose of *χώρα*,¹ a word that seems to have been left at loose ends. Perhaps Sextus, with his classifying activity, wished to dispose of the unassigned function mentioned Ad Herod. 40, *δι' οὗ ἐκινεῖτο*. *χώρα* may have suggested *χωρέω*, and out of that may have grown the idea of combining the odd function and the odd term. So *χώρα* appears. *χωρούντων δὲ δι' αὐτῆς σωμάτων χώρα γίνεται*.

¹ See Plut. Epit. I 20, Diels, *Doxographi Graeci*, p. 317.

In any case, the explanation seems to be in no way more fanciful than the definition.

These results of the examination of the fragments of Epicurus, confirming as they do the inherent improbability of Sextus' definitions, justify us in rejecting Polle's view that Epicurus observed the distinctions of meaning assigned by Sextus to the terms ἀναφής φύσις, κενόν, τόπος and χώρα.

B.

Epicurus used the terms synonymously, *sine ullo discrimine*.

If Epicurus felt no fundamental distinction between the ideas of void and space, he could have conceived of no fundamental difference between the several forms ἀναφής φύσις, κενόν, τόπος and χώρα. Giussani meets the issue squarely by the statement that to Epicurus the ideas of void and space were really identical.¹ He shows very subtly and truly that the nature of Stoic and Epicurean polemics tended to confuse the two ideas of void and space. As the question was stated between

¹ Giussani, *Studi Lucreziani*, 21-26.

the two schools, the demonstration of the absolute existence of extension, apart from that of body, was dependent upon the demonstration of the existence of void, *inane purum*. The proof of the one being identified with the proof of the other, the two concepts became confused, and the two ideas naturally overlapping in the argument produced confusion in the terminology. Had Giussani stopped in his exposition just at this point, he would have offered an interesting and welcome explanation of some of the obscurities in Epicurus and Lucretius. But he goes still further and says:¹ “È cioè da badare che, mentre noi moderni concepiamo lo spazio essenzialmente come estensione — la quale si continua naturalmente (nel nostro spirito) sia per regioni immaginate vuote sia per corpi, e non pensiamo quindi punto a un *alternare* di spazio e materia — quegli antichi, al contrario, pensando spazio non pensavano estensione, ma pensavano *vuoto*. Di qui viene che quando Epicuro concepisce il vuoto come una entità reale, pur ammettendo in un certo senso, ossia per astrazione, l' esistenza di esso anche là dove

¹ Giussani, Studi Lucreziani, p. 24.

esso è occupato da materia, lo pensava però in questi casi come un vuoto in potenza, un vuoto la cui realtà era, per dir così, transitoriamente sospesa: etc."

This ingenious theory has produced much consternation among Lucretian scholars. "Ciò equivarrebbe a dire che Epicuro e Lucrezio concepivano *per astrazione* tutto il mondo come vuoto!" exclaims Pascal,¹ and, again, styles the theory "sottili logomachie." Brieger is equally emphatic. "Besser kann diese Ansicht offenbar gar nicht ad absurdum geführt werden, denn 'vuoto vuoto' ist ein Pleonasmus und 'vuoto occupato' eine contradictio in adjecto."²

It would seem as though Giussani were explaining away, if he really explains at all, a few obscurities in Lucretius at a very great cost, namely, the claim that a little more than twenty centuries have changed one of the fundamental modes of human thought.

It is not, however, any part of my task to determine here the abstract possibility of such

¹ *Studii Critici sul Poema di Lucrezio*, p. 31.

² A. Brieger, *Philologus*, 1901, p. 510.

a general concept. The present investigation is concerned only with the actual use of the technical terminology. Its object will be attained if two questions are answered: first, whether there is evidence in the original Epicurean documents of a distinction in thought between void and space, and if so, in what manner Epicurus indicated such a distinction by his terminology.

Manifestly, both questions do not admit the same kind of evidence, for in attempting to answer the first, we may allow ourselves greater latitude than hitherto, inasmuch as we are now dealing with Epicurean thought and not exclusively with the vocabulary of Epicurus himself. We may admit, then, not only later *testimonia* to the views of Epicurus, but may also appeal to Democritus and Leucippus in cases where their opinions are not known to have diverged from those of Epicurus.

The arrangement that Usener¹ has made of this class of evidence suggests a further division of the subject, viz. (a), the discussion of space as a whole (*Gesamtraum*) and (b), the discus-

¹ Usener's *Epicurea*, Leipsic, 1887, pp. 193 ff.

sion of space in the sense of limited extension (*Raumtheilen*).¹

a. Simplicius, in Arist. phys. Δ 5 extr. (p. 213^a, 10) f. 140^a, Ald. p. 379^b, 24 Brand., Us. p. 193, ἰστέον οὖν ὅτι τῶν περὶ τόπου τι γραψάντων οἱ μὲν σῶμα τὸν τόπον οἱ δὲ ἀσώματον ὑπέθεντο . . . καὶ τούτων οἱ μὲν πάντῃ ἀδιάφορον καὶ ποτε καὶ ἄνευ σώματος μένον, ὡς οἱ περὶ Δημόκριτον καὶ Ἐπίκουρον. . . . Here we have a homogeneous entity extending without interruption through matter and void. It is designated as τόπος and must mean "space" or "extension." Ib., f. 144^a, Us. p. 193, πάλιν δὲ αὐτῶν τὸ κενὸν αὐτὸ τιθεμένων οἱ μὲν ἄπειρον εἶναί φασι καὶ ὑπερβάλλον ἀπειρίᾳ τὰ σώματα καὶ διὰ τοῦτο ἄλλο ἓν ἄλλοις αὐτοῦ μέρεσι καταδεχόμενον, ὡς ἂν ἔτυχον, εἴ περ μέρη λέγειν ἐπὶ τοῦ ἀπείρου κενοῦ δυνατόν. τοιαύτην δὲ περὶ αὐτοῦ δόξαν ἐσχηκέναι δοκοῦσιν οἱ περὶ Δημόκριτον ἀρχαῖοι φυσιολόγοι. The concept of this κενόν is essentially the same as the τόπος in the preceding passage. It is infinite extension, the frame of the universe, which contains within itself the bodies of matter. The name

¹ Cf. A. Brieger, *Philologus*, 1901, pp. 511 ff.

applied to it is *κενόν*, but the meaning is clearly space.

b. The next passage, cited by Usener, deals with *τόπος* in its narrower sense (*Raumtheilen*). Simplicius, in Arist. phys. Δ 4 (p. 211^b, 7) f. 133^r, Us. p. 194, declares that the followers of Democritus and Epicurus considered that *τόπος* was *τὸ διάστημα τὸ μεταξὺ τῶν ἐσχάτων τοῦ περιέχοντος*, and he adds later, *τὸ δὲ διάστημα τοῦτο οἱ μὲν περὶ Δημόκριτον καὶ Ἐπίκουρον κενὸν εἶναι λέγουσιν οὕτως ὥστε ποτὲ μὲν πληροῦσθαι σώματος, ποτὲ δὲ κενὸν ἀπολείπεσθαι*. We have here a clear-cut concept of extension, although the term *κενόν* is still applied. Extension is here regarded abstractly as the interval between the superficies of the bounding bodies. It is sometimes void of body and sometimes full, but always absolutely self-existent, pure extension. But if any doubt clings to the intent of the preceding passage, the idea is abundantly plain from the following; Themistius paraphr. Arist. phys. Δ 4 (p. 214^b, 14) f. 38^u, Ald. p. 268, 23 Speng., Us. p. 194, *λείπεται τοίνυν ἡμῖν, ὅτι μηδὲ τὸ διάστημα ὁ τόπος ἐστίν, ἀποδεῖξαι. διάστημα δὲ τὸ μεταξὺ νοούμενον τῶν περάτων τοῦ περιέχοντος, οἷον τὸ μεταξὺ τῆς κοίλης ἐπιφανείας*

τοῦ κάδου. παλαιὰ μὲν οὖν ἡ δόξα καὶ τοῖς τὸ
 κενὸν τιθεμένοις προσήκουσα, ἠκολούθησεν δὲ ὁμως
 αὐτῇ καὶ ὁ περὶ Χρύσιππον χορὸς καὶ Ἐπίκουρος
 ὕστερον, εἰσποιοῦσι δέ τινες καὶ τὸν Πλάτωνα τῷ
 δόγματι. ἤρτηται δὲ ἐκ πιθανῆς μὲν αἰτίας, ψευ-
 δοῦς δὲ ἱκανῶς. ἐπειδὴ γὰρ εἰς ἐπίνοιαν ἤλθομεν
 ὅλως τοῦ τόπου ἐκ τῆς ἀντιμεταστάσεως τῶν
 σωμάτων καὶ τοῦ γίνεσθαι συνεχῶς ἄλλοτε ἄλλα
 ἐν τῷ αὐτῷ τόπῳ, διὰ τοῦτο αὐτοῖς ὁ τόπος ἔδοξεν
 εἶναι τὸ διάστημα τὸ μεταξύ, ὃ ταὐτὸ μένον ὑπε-
 λάμβανον ὑποδέχεσθαι τὰ ἀντιμεθιστάμενα σώ-
 ματα κεχωρισμένον ἐκάστου τούτων τῶν εἰσιόντων
 σωμάτων. ἐνῆγε δὲ αὐτοὺς εἰς ταύτην μάλιστα
 τὴν ὑπόνοιαν τὰ ἀγγεῖα· ἐπειδὴ γὰρ τῆς ἐπιφα-
 νείας ἐν τῷ κεραμίῳ τῆς κοίλης μενούσης τῆς
 αὐτῆς καὶ περιγεγραμμένης ἰδίῳις πέρασιν ποτὲ
 μὲν ὕδωρ ἐγγίνεται, ποτὲ δὲ ἀήρ ἐν τῷ σκεύει, διὰ
 τοῦτο εἶναι τὸ μεταξύ τῆς κοίλης ἐπιφανείας διά-
 στημα ὑπενόησαν, ὃ ταὐτὸ μένον καὶ τῶν σωμάτων
 κεχωρισμένον, ὥσπερ καὶ ἡ ἐπιφάνεια τοῦ ἀγγείου,
 δέχεσθαι ἀνὰ μέρος τὰ σώματα. ἀλλ' οὐκ ἔστι
 τοῦτο ὑγιές. εἰ μὲν οἶόν τε ἦν κενὸν σώματος
 γενέσθαι ποτὲ τὸ ἀγγεῖον, ἴσως ἂν ἐφωράθη καθ'
 ἑαυτὸ τὸ λεγόμενον τοῦτο διάστημα· νῦν δὲ ἅμα
 ἐκχεῖται τὸ ὕδωρ καὶ ὁ ἀήρ ἀντείσέρχεται. κἀν-
 τεῦθεν ἡ πλάνη· ἐπεὶ γὰρ σῶμα πᾶν μετὰ δια-

στήματος, μεταφέρουσιν τὸ τῶν σωμάτων διάστημα ἐπὶ τὸν τόπον, οὐκ ἐννοοῦντες ὅτι διὰ τοῦτο αἰεὶ διάστημα ἐστὶν ἐν τόπῳ, ἐπειδὴ καὶ σῶμα αἰεὶ· δηλοῖ δὲ τὰ χαλκᾶ καὶ στεγανὰ πανταχόθεν ἀγγεῖα· οὐ γὰρ ἂν ἐκρύσειεν τὸ ὕδωρ, εἰ μὴ χώραν (εἰς) εἴρυσιν ὁ ἀὴρ λάβοι. φενακίζει δὲ αὐτοὺς καὶ τὸ μένειν αἰεὶ ἀσύγχυτον καὶ τὴν κοίλην ἐπιφάνειαν τῶν ἀγγείων, ὡς εἴ γε συνέπιπτεν ἐξαιρουμένου τοῦ ὕδατος ὥσπερ ἐπὶ τῶν ἀσκήων, οὐκ ἂν ὁμοίως ἐξηπατῶντο.

It is explicitly stated in the preceding quotation that Epicurus regarded *τόπος* as *διάστημα*. A definition of *διάστημα* follows which is in all respects quite identical with the modern notion of extension and quite distinct and separate from the idea of void. It remains as simple extension whether occupied by body or absolutely void. It exists independently, *per se*, and is in no sense an immanent quality of body. The existence of *κενόν* is necessary, as Giussani says,¹ to the existence of extension *per se*. That, however, Epicurus and the Atomists at any time identified the two things, void and extension, as one and the same thing,

¹ Giussani, *Studi Lucreziani*, p. 24 ff.

is very difficult of acceptance. The evidence of the Greek seems to be a sufficient refutation of Giussani's position.

Since the passages previously cited are not literal quotations from the Atomists, it is not permissible to make the Greek the basis of a discussion of terminology, and, for the same reason, we are relieved of the necessity, at this point, of explaining the evident confusion of terms.

It remains to show that in the fragments of the writings of Epicurus there are evidences of an actual distinction in terminology corresponding to the distinction in thought between void and space. Such a demonstration is in place here, since it would conclude the immediate investigation and justify the rejection of the theory that all the terms were used synonymously. Inasmuch, however, as this demonstration would be constructive in character, it may properly be treated under the third view.

C.

Epicurus, by his use of the terms, distinguished between the ideas of void and space. His application of terms is occasionally inaccurate, but the general distinction is clear.

It may be said, although the statement should be controlled by some qualifications and exceptions, that ἀναφής φύσις and κενόν mean void. τόπος usually carries the meaning of space, either in its universal aspect (*Gesamt-raum*) or in its narrower phase (*Raumtheilen*). There is no evidence that χώρα was used in any rigorous technical sense. The exceptions to this general usage and their causes will be discussed under the analysis of the individual terms.

Ἀναφής φύσις. — This term has already been treated. The results obtained are in accord with our present view.

Κενόν. — This is the regular term used by Epicurus to denote the second element of the universe, void. The word also occurs in the sense of space. The passages in which the word appears with each meaning have already been classified. It is necessary to discuss here only the exception to its use in the meaning of void. It should be noted carefully that this transfer of meaning occurs when associated with the idea of motion, in what Sextus would call the χώρα phase. Though the usage is not strictly accurate, the meaning is clear, and it

is not difficult to account for the source of the confusion. Motion, to Epicurus, proved the existence of void,¹ and void made possible motion. The controversial attitude of Epicurus toward the school of Parmenides, on this point, brought the associated ideas into high relief and importance. The result is shown in the careless use made by Epicurus of *κενόν*, in allowing it to creep over and usurp the meaning of *τόπος*. The sole instance in which Epicurus seems to use *κενόν* in the sense which Sextus gave to *τόπος*, namely void occupied by body, occurs in Ad Herod. 42, *εἴ τε τὸ κενὸν ἦν ὠρισμένον, οὐκ ἂν εἶχε τὰ ἄπειρα σώματα ὅπου ἐνέστη*. This use of *κενόν*, however, is probably due to the momentum of the previous sentence, *εἴ τε γὰρ ἦν τὸ κενὸν ἄπειρον, τὰ δὲ σώματα ὠρισμένα, οὐδαμοῦ ἂν ἔμενε τὰ σώματα, ἀλλ' ἐφέρετο κατὰ τὸ ἄπειρον κενὸν διεσπαρμένα, κτλ.*

Τόπος is the word used by Epicurus to designate space, room, extension. He uses the term in this sense, Ad Pyth. 69, *ἐν πολυκένῳ τόπῳ καὶ οὐκ ἐν μεγάλῳ εἰλικρινεῖ καὶ κενῷ*.

¹ Sextus emp. adv. dogmat. II (Math. VIII) 329, 314, Us. p. 193.

Here *τόπος* is contrasted with *κενόν* as the whole with the part. *τόπος* is space containing many void parts. *κενόν* is a portion of space absolutely devoid of body. Again, Ad Herod. 40, *τόπος δὲ εἰ μὴ ἦν, ὃν κενὸν καὶ χώραν καὶ ἀναφῇ φύσιν ὀνομάζομεν, οὐκ ἂν εἶχε τὰ σώματα ὅπου ἦν οὐδὲ δι' οὗ ἐκινεῖτο, καθάπερ φαίνεται κινούμενα.*¹ The function of *τόπος* is here stated to be, as it were, the frame of the universe for the position and operation of matter. This is clearly space. A passage in Sextus emp., if it may be regarded as a literal quotation, seems to show a sensitiveness on the part of Epicurus to the value of the terms *τόπος* and *κενόν*. Sextus emp. adv. dogmat. I (Math. VII) 213, Us. p. 181, *οἶον ὁ Ἐπικούρου λέγων εἶναι κενόν, ὃ πέρ ἐστιν ἄδηλον, πιστοῦται δι' ἐναργούς πράγματος τοῦτο, τῆς κινήσεως· μὴ*

¹ The relative clause is an excellent illustration of the carelessness and crudity of Epicurus as a scientific writer. It may be that Epicurus intended *ὃν . . . ὀνομάζομεν* to mean about what Cicero intends when he uses *quasi* with a confessedly inadequate word. An explicit statement of identity would be phrased differently, perhaps something like this: *ὃν καὶ κενὸν χώραν ἀναφῇ φύσιν ὀνομάζομεν, οἷον, ὃ καὶ ἐστὶ ταὐτὸ κενῷ χώρᾳ ἀναφεῖ φύσει*. Either of these phrases would be unequivocal.

ὄντος γὰρ κενού οὐδὲ κίνησις ὄφειλεν εἶναι, τόπον μὴ ἔχοντος τοῦ κινουμένου σώματος εἰς ὃν περιστήσεται διὰ τὸ πάντα πλήρη εἶναι καὶ ναστά.

On the other hand we find the statement in Plut. adv. Col. 11, p. 1112^e, Us. p. 125, ἡ τῶν ὄντων φύσις σώματά ἐστι καὶ τόπος. It is true that he makes the statement with more scientific accuracy a little later. Plut. adv. Col. 13, p. 1114^a, Us. p. 124, ἐν ἀρχῇ δὲ τῆς πραγματείας ὑπειπὼν τὴν τῶν ὄντων φύσιν σώματα εἶναι καὶ κενόν. . . . The occurrence of such a discrepancy, however, does not afford sufficient ground for the alteration of the former passage. Furthermore, the text of Ad Herod. 39, seems to resist all reconstruction but τὸ πᾶν ἐστι <σώματα καὶ τόπος>.¹ We are forced, therefore, to hold either that Epicurus uses τόπος and κενόν with full deliberation as perfect synonyms, or that he uses the phrase σώματα καὶ τόπος carelessly and inaccurately. For if τόπος usually means space, and the Epicureans clearly distinguished between void and space, we must admit that Epicurus is expressing himself with

¹ Pascal, *Studii Critici*, p. 29 (Note). A. Brieger, *Philologus*, 1901, p. 512. Usener's *Epicurea*, p. 6 ad loc.

scientific inexactness. It is as though he said, "The All is composed of bodies and space that contains the bodies and the void." The amount of extension possessed by the bodies of matter is doubled in the formula σώματα καὶ τόπος, as the bodies, *per se*, have their own extension; whereas τόπος includes the extension not only of the void but also of the bodies that are in it.¹ Thus, in our phrase, the two elements are not mutually exclusive, as they would be if the reading σώματα καὶ κενόν might be adopted. We are forced, therefore, either to take τόπος here in the sense of κενόν, which will practically identify in the Epicurean thought the concept of void and space and involve us in the mazes of void void and occupied void, or, keeping the meaning of τόπος in the sense of space, frankly to admit that Epicurus is careless and inexact in his choice of terms. The error, however, is more apparent than real and the meaning is quite clear. In speaking generally, we use the phrase "matter and space," as though the substances were mutually

¹ Cf. Simplicius in Arist. phys. Δ 5 extr. (p. 213^a, 10) f. 140^u, Ald. p. 379^b, 24 Brand., Us. p. 193.

exclusive, without stopping to realize that space when occupied by matter is properly a quality of the latter in the form of extension. Thus, in general reflections on the infinite expanse of empty room, infinitely greater than even the infinite amount of matter,¹ the idea of space comes to mean for us, unless corrected by clear thinking, empty space. And this is the way in which, I think, Epicurus uses *σώματα καὶ τόπος*. In view of the disorder and carelessness with which his three letters are thrown together, it seems reasonable to admit error and carelessness in his use of terms. The general character of his philosophical writings, if it is fair to judge of them from the few fragments that remain, hardly deserves the efforts of Giussani to develop a theory that will clear away from them, in this one particular, the obscurities and contradictions.

SUMMARY.

The evidences of the use made by Epicurus of the terms *ἀναφής φύσις, κενόν, τόπος* and

¹ So also the Epicureans. Cf. Simp. in Arist. phys. Δ 5 extr. f. 144ⁿ, Us. p. 193.

χώρα justify, I conclude, the rejection of the view that Epicurus gave to each of these terms a definite technical sense and held to these definitions consistently. We are also justified in rejecting the view that the terms were used synonymously without distinction. Scanty as the evidence is, it points to a distinction in meaning between *τόπος* and *κενόν* or *ἀναφῆς φύσις*. The former means space, the latter void. *χώρα* shows no technical meaning. The meanings of *τόπος* and *κενόν* occasionally overlap, owing to the carelessness of Epicurus as a writer and thinker and also to a natural confusion of the ideas of void and space in the treatment of motion.

II.

USAGE OF THE LATIN TERMS BY LUCRETIVS.

A priori, we should expect Lucretius to adopt the nomenclature of his master, so far as a poetical form and the peculiarities of the Latin language would permit. Such an assumption will be of value as a working hypothesis. For, if applied to the three theories previously discussed, this assumption will test, to a certain

degree, the truth of our conclusion in regard to Epicurus and at once organize the method of investigation in Lucretius.

A.

Does Lucretius offer any support to the statement of Sextus, accepted by Polle?

Obviously, if true, *κενόν* would be translated by *inane* or *vacuum*, *τόπος* by *locus*, *χώρα* by *spatium* and *ἀναφής φύσις* by *intactilis natura* or rather by the metrically possible *natura intactilis*. But this hypothetical usage breaks down under an examination of the terms in Lucretius. Nor does any redistribution of the Latin terms help the matter. I submit the results of an examination of the poem.

1. *Ἀναφής φύσις, κενόν*. The term *ἀναφής φύσις* appears with certainty nowhere in Lucretius.¹ A reminiscence of it occurs in I 363, 437, and V 357. Lucretius apparently felt no need to distinguish with his terms between void in the wider and void in the narrower sense. The Greek terms are rendered by Lucretius as follows:

¹ The reading of I 334; I 454, has not yet been entirely established against Lachmann's grounds for deletion.

a. Inane, unqualified, I 223 (*inania*), 330, 342, 356 (*inania*), 363, 365, 369, 382, 386, 396, 399, 431, 445, 480, 507, 510, 511, 514, 517, 524, 527, 532, 536, 538, 569, 655, 660, 742, 745, 843, 1009, 1010, 1078 (perhaps), 1079 (perhaps); V 365, 366, VI 941.

Inane, qualified, I 444, *inane vacansque*; 439, 509, 523,¹ *vacuum inane*; 658, *inane purum*; 520, *quod inane vocaret*; II 236, *inane vacuum*; V 357, *sicut inanest quod manet intactum*.

b. Vacuum, I 367, 393, 394; VI 1014, 1019.

c. Spatium, I 389, 507, *vacat spatium quod inane vocamus*; 527, 1110.

2. *χώρα*. The following equivalents of the *χώρα* of Sextus are found in Lucretius:

a. Inane, *e.g.*, I 420, equivalent to both *χώρα* and *τόπος*; 954, *χώρα* and *τόπος*; 1018, *magnum per inane*; II 122, *in magno inani*; 83, *per inane*; I 1108, *per inane profundum*; II 202, *vacuum per inane*; 217, *rectum per inane*; II 238, *per inane quietum*; III 17, *totum per inane*; etc.

b. Locus is equivalent to *χώρα* in V 359,

¹ For reading cf. Brieger and Giuss. Mr. and Bailey hold with Lach. and Bern.

V 370, to both *χώρα* and *τόπος* in I 482,¹ 505. In I 426 ff. the two functions are mentioned in connection with **locus** and **spatium**. As, however, both functions of void are elsewhere assigned to **locus** alone, I 482, it does not seem sound to distribute them in this sentence and to say that **locus** affords position to body and **spatium** a medium of movement. Furthermore, in I 472 and 954, both functions, that of *χώρα* and of *τόπος*, are assigned to **locus** and **spatium** jointly. In analyzing I 426 ff., therefore, we have not sufficient grounds for the conclusion that the phrase **haut usquam sita corpora possent** refers to **locus** and the phrase **esse neque omnino quocumque diversa meare** refers to **spatium**.

c. **Spatium**. It is possible that **spatium**, the term to be expected a priori, is used in the sense of *χώρα* in I 426, although, as previously argued, this use is far from certain. In other cases where **spatium** is associated with **locus** in the phrases that are equivalent to *χώρα* (I 472, 954), the special function of each term is not mentioned. No instance

¹Gerantur implies both position and movement.
 "Move and have their being."

occurs where **spatium** is used as a single term in the undoubted sense of *χώρα*. **Spatium sine fine modoque** II 92, is probably infinite extension. The same is true of the much disputed **spatium** of I 523, an indefinite term probably not defined with absolute clarity even in the mind of Lucretius.

3. **Τόπος**. No single term occurs in Lucretius carrying beyond question the meaning assigned to *τόπος* by Sextus emp.

The results of this examination of the *De Rerum Natura* lead us to the conclusion that Lucretius did not use the terms **inane**, **vacuum**, **locus** and **spatium**, on the basis of any such distinctions in meaning as claimed by Sextus for the Greek terms, and confirm us further in the belief that the definitions of Sextus were erroneous. Indeed, unless he had suggested the distinctions, it is inconceivable that they ever would have occurred to any modern scholar.

B.

Does Lucretius use the terms **inane**, **vacuum**, **locus**, **spatium**, **sine ullo discrimine**? ¹

¹ Woltjer, *Lucreti Philosophia cum Fontibus Comparata*, p. 18, note 5.

The ultimate grounds upon which this notion must be held, namely, that the Epicureans identified the ideas of space and void, have already been presented under the similar view of the use of the terms by Epicurus. Reasons for the rejection of this view were found both in the results of a general examination of the thought of the Atomists and also in an examination of the evidences in the existing fragments of Epicurus of a distinction in his nomenclature. Since, therefore, we have found good grounds for believing that Epicurus distinguished between the two ideas, we may omit the same inquiry in the case of the Epicurean disciple, Lucretius, and proceed at once to consider what distinctions, if any, appear in his terminology. This demonstration, since it is constructive in theory, should properly be discussed, as in the case of the similar treatment of Epicurus, under the third view.

C.

Lucretius used the Latin terms with certain distinctions, although some confusion is apparent in their application. Ἀναφῆς φύσις and κενόν are represented in Lucretius by *inane*,

which is used both in the wider and narrower sense. **Vacuum**, both adjective and substantive, is used as a variant (subst.) or intensive (adj.) of **inane**. **τόπος**, usually in its wider sense of *Gesamtraum*, is represented by **locus**. **Spatium** appears as a variant of **locus**, although generally used without any clear-cut technical meaning. The exceptions to these uses and their causes will be discussed under the analysis of individual terms.

1. **Inane**. The word occurs 76 times in the **De Rerum Natura**. I 334 has been deleted. In I 639; III 116, 982, 998; IV 995; VI 834, the word is not used technically. 69 occurrences remain.¹ Of these terms 45 are used in the sense of ἀναφῆς φύσις or κενόν.² 22 instances remain in which Lucretius uses the word in a different sense. These 22 exceptions may be subdivided into two groups. *a.* The instances in which **inane**, as a single term, occurs in the χώρα phase of Sextus emp., i.e. space with matter moving about in it. 19 instances occur of this use. *b.* The instances

¹ I 1074 is excluded, though a certain reconstruction, **Locus inanis**, VI 832, is discussed p. 106.

² See p. 93 for complete list of **inane** = κενόν.

in which **inane** appears in a periphrasis of which the meaning seems to be space.

a. The use of **inane**, in this group,¹ is in all respects like one of the uses of *κενόν*, previously noted. It is apparent that the shift of meaning from **inane purum** to space with matter moving about in it, is made in Lucretius under the same conditions as the similar shift in Epicurus. In all of these passages there is represented the operation of motion. Now, to the Atomist, motion implied void.² A body could move in space only if the space before it, around it and behind it were void, for the moving body must have room into which to move, must not be wedged by flanking bodies, and must necessarily leave, at least for an instant, the

¹ I 1018, **magnum per inane**; 1103, **magnum per inane**; 1108, **per inane profundum**; II 65, **magnum per inane**; 83, **per inane**; 96, **per inane profundum**; 105, **magnum per inane**; 109, **magnum per inane**; 116, **per inane** (a loose use); 122, **in magno iactari semper inani**; 151, 158, **per inane vacuum** (l. 151 may be classified here, although, speaking with precision, the sunlight does pass through *χώρα*); 202, **vacuum per inane**; 217, **rectum per inane**; 226, **rectum per inane**; 238, **per inane quietum**; III 17, **totum per inane**; 27, **quaecumque infra per inane geruntur**; VI 838 (a curious use).

² Sext. emp. adv. dogm. II (Math. VIII) 329, Us. p. 193.

space behind it void. Hence, in Epicurus, the philosophic treatment of motion developed a preference for *κενόν*,¹ although it must have been evident to him that the whole area traversed by the moving body was not void, but space coextensive with full and void.

In the case of Lucretius, moreover, another cause operated to develop the phrase. It was in itself, especially when used with **magnum** or **profundum**, of high poetic intensity, of a quality to kindle the imagination when met even in the dead levels of Lucretian didactics. The poetic quality lies not only in the sonorous sound but also in the idea of the sweep through awful infinite emptiness. It is to heighten this effect that the poet uses **magnum**, **quietum**, **profundum**, and the phrase becoming stereotyped carries, curiously enough, even the adjective **vacuum**.² It is open to controversy whether the word **inane** in these phrases is used technically at all.³

¹ Brieger, *Philologus*, 1901, p. 510.

² II 202.

³ Cf. Tennyson, "Lucretius,"

... "and I saw the flaring atom-streams
And torrents of her myriad universe,
Ruining along the illimitable inane."

b. The three instances in which **inane** occurs in a periphrasis with a meaning other than void, should be quoted in their context.

I 418-429.

"Sed nunc ut repetam coeptum pertexere dictis,
omnis ut est igitur per se natura duabus
constitit in rebus; nam corpora sunt et inane,
haec in quo sita sunt et qua diversa moventur.
corpus enim per se communis dedicat esse
sensus; cui nisi prima fides fundata valebit,
haut erit occultis de rebus quo referentes
confirmare animi quicquam ratione queamus.
tum porro locus ac spatium, quod inane vocamus,¹
si nullum foret, haut usquam sita corpora possent
esse neque omnino quoquam² diversa meare;
id quod iam supera tibi paulo ostendimus ante."

I 951-957.

"Sed quoniam docui solidissima materiali
corpora perpetuo volitare invicta per aevom.
nunc age, summai quaedam sit finis eorum
necne sit, evolvamus; item quod inane repertumst
seu locus ac spatium, res in quo quaeque gerantur,
pervideamus utrum finitum funditus omne
constet an immensum pateat vasteque profundum."

¹ Cf. I 1074.

² Reading with Mr. and Giuss. The reference is clearly to I 370 and the argument from motion.

It is evident that the **inane** of these passages, if we give the word the meaning of the entire periphrasis, is not that second element of the universe which is absolutely devoid of body; for it is expressly stated that body is in it and there carries on its operations. The contradiction is most distinct in 420 ff. It is stated, in 418-420, that bodies and void are two absolutely independent existences. In 421, however, they are mixed. The deletion of 421 would bring but temporary relief, as the trouble comes up again in 426-7 and again in 954, where it is quite impossible to apply the surgical method. The **inane**, then, in these passages, as defined by the relative clause, is something quite different from the **inane purum**¹ of the earlier references. Indeed it is no longer void at all, but the *χώρα* of Sextus, void with matter moving about in it. The same contradiction in logic was found in Epicurus.

The explanation of the difficulty must ultimately depend on our conception of Lucretius as a thinker and writer. To those unwilling

¹ Hoerschelmann, *Observationes Lucretianae Alterae*, p. 3. De inani puro.

to admit carelessness in his thought or composition, Giussani offers his ingenious theory. If Lucretius identified the two concepts, there can be no contradiction in his interchange of terms. But the resulting confusion of thought with its void void and occupied void seems too high a price to pay for the verbal consistency. We often speak of a field as green although it may really be dotted all over with daisies and buttercups. We call it green because it really is nearly all green and gives the general impression of green. We would not, however, offer to any champion of precision, who might chance to correct us for the inaccuracy of the expression, the argument that we are quite right, for we hold it in mental reservation that where the yellow and white blossoms are, there is green-potential, but where the field is really green there is green-actual, going on to develop a color scheme of green-green, yellow-green, white-green, or any other combination, limited solely by the flora of the country.

It is more reasonable to believe that Lucretius, when he said **nam corpora sunt et inane**, I 420, really thought and meant **inane**, but, in adding the clause **haec in quo sita sunt et qua di-**

versa moventur, extended the **inane**, by a sort of philosophical synecdoche, to include the greater whole of space with bodies moving in it, in the lesser concept of **inane**. There are indications that Lucretius felt the inaccuracy himself; for the **inane**, I 439, is qualified by the intensive **vacuum**. Note also, I 444, **inane vacansque**; 507, **vacat spatium, quod inane vocamus**; 509, **vacuum inane**. After reëstablishing, in this way, his technical use of the word, he reverts again to the simple term. The reason for the shift of meaning has been met before. Lucretius has just said, "The nature of the **Omne**, as it exists by itself, has been founded on two things: for bodies and void exist," I 419, 420. **Communis sensus** attests the existence of **corpus**, motion attests the existence of void. The proof of the existence of body is given in a separate statement; but the proof of void is thrown into a relative attribute that so modifies the idea of **inane** as to alter the concept from void to space. This confusion, however, is more apparent than real, for in speaking roughly, as in the case of the green field, we often refer to a thing as homogeneous although we know that the homogeneity is actually interrupted. The

idea of space gaining ascendancy through the nature of the proof of void, the momentum of the idea carries line 426, where the periphrasis for space proper appears in the stereotyped formula of Epicurus, **Tum porro locus ac spatium, quod inane vocamus**, together with its function in which is involved the proof of void, **Si nullum foret, haut usquam sita corpora posent | esse neque omnino quoquam diversa meare.**

The same confusion of **inane** with **locus** through the nature of the proof of void appears in I 954, **item quod inane repertumst | seu locus ac spatium, res in quo quaeque gerantur. Repertumst** here links the term **inane** with the thought of proof, and **gerantur** includes the two functions, movement and position.

Both passages must be admitted to show carelessness and obscurity. The explanation, however, should not be sought in such an interpretation of the metaphysical concepts of Lucretius as would involve the identification of void and space. It has been shown that every case of this type of confusion occurs in connection with the idea of motion.

2. **Vacuum** occurs 6 times in the **De Rerum Natura** as a substantive in the sense of **inane**

and *κενόν*, namely, I 367, 393, 394, 439; VI 1014, 1019. It also appears in adjective form intensifying the same idea, namely, I 509, 523, 526; II 151, 158, 202, 236.¹ Variants containing the root are *vacans*, I 444; *quacumque vacat spatium*, I 507; *locus vacuatus*, VI 1025=*κενόν*; *spatium vacat*, VI 1030. No controversial elements are involved in the Lucretian use of *vacuum*.

3. *Locus*. The word appears 101 times in the *De Rerum Natura*. I 334 is deleted. Over against the 6 non-technical uses of *inane*, we find 82 non-technical uses of *locus*. There remain 19 philosophical uses of the latter against 69 of *inane*. Such a great disparity in the ordinary use of the words would lead us to expect a greater latitude in the technical use of *locus* than in the technical use of *inane*. In its strict technical use *locus* represents *τόπος*, usually in its wider sense of *Gesamtraum*. Modifications of this use, however, occur. The 19 instances of the technical occurrence of *locus* may be divided into two groups: (a) Cases in which the word is used as a single term,

¹ Cf. Hoerschelmann, *Obs. Alt.* p. 35.

(b) occurrences in a periphrasis representing a single term.

a. **Locus** is used as a single term in philosophical passages, 13 times.¹ In these passages **locus** unquestionably means space. Here belong the expressions **natura loci spatiumque profundum**, I 1002, and **summa loci sit infinita**, II 1044. The passage occurring V 351–372 should be noted, as it shows a marked and careful distinction between **locus** and **inane**. In VI 832 the phrase **prope inanis locus** is illuminating. The expression means *κενόν*, but **locus** is clearly a piece, as it were, of space, *Raumtheil*. A similar expression is found in VI 1006, **in-aniter spatium multusque vacefit | in medio locus**, and also in VI 1025, **factus inanitusque locus magis ac vacuatus**.² In this group belongs the use of **locus** in II 1068,

“Praeterea cum materies est multa parata,
cum locus est praesto nec res nec causa moratur
ulla, geri debent nimirum et confieri res.”

Here **locus** again means space. The passage does not necessarily call for the mutual ex-

¹ I 373, 444, 522, 1002; II 1044, 1068; IV 207; V 351–372; VI 832, 1006, 1025.

² Cf. *ἐν πολυκένῳ τόπῳ*, Diog. Laert. X 89.

clusion of void and matter, and **locus**, taken in this sense, provides room for the position and movement of the bodies of matter. Here, too, may be placed the loose phrase **multiplex loci spatium**, IV 207.

In I 373 the expression **quia loca pisces**, etc., occurs in the argument of an opponent and is therefore not properly available as evidence. The term, however, is used in the sense of *Raumtheilen*. So also are used the occurrences of **locus** in I 444, 522.

The use, therefore, of **locus** as a single term shows unmistakably the meaning of space both in the larger and narrower sense.

b. **Locus** occurring in periphrases expressing the idea of space. The first occurrence in the phrase **locus ac spatium quod inane vocamus**, I 426, has been already discussed. Note in connection with this passage I 1074. The phrase recurs with the same meaning in I 472, **nec locus ac spatium, res in quo quaeque gerantur**. **Gerere** represents the phrases **in quo sita sunt et qua diversa moventur**,¹ where matter has its

¹ It is extremely unlikely that **in quo sita sunt** means that the given space is entirely occupied by body,

position and moves. I 955 has already been discussed, **seu locus ac spatium, res in quo quaeque gerantur**. The meaning here also is space. It should be noted that the formula omits **spatium** in two instances, but the meaning of **locus** remains space, I 482, 505. In all of these expressions **locus** means not void but space, as the qualifying phrases clearly show in every case. The inaccuracy of statement on the part of Lucretius which results from this interpretation must be admitted. The source of the confusion is the same as already explained under a similar use of *τόπος*.

4. **Spatium**. The term is used as a variant of **locus** in the sense of space. Aside from this usage I have not discovered any clear-cut technical use for **spatium**.

which seems to be the meaning naturally attached to *ἡ αὐτὴ φύσις καταλαμβανομένη ὑπὸ σώματος* (Sext. emp.). It translates rather the *ὅπου ἦν* of Epicurus, and means rather that void is all around body. Pascal's interpretation helps us to understand the thought of Lucretius, although it does not remove the contradiction and inaccuracy.

III.

USAGE OF THE LATIN TERMS BY CICERO.

Cicero devotes very much less attention to the discussion of space and void than Lucretius. Indeed the subject seems hardly to be treated at all for its own sake, unless in Ac. II 125. He mentions void and space only cursorily in the discussion of the Epicurean philosophy. On the whole Cicero uses with accuracy the word *inane*, deviating from the strict meaning of the term only under the conditions observed in Epicurus and Lucretius. Unlike Lucretius, furthermore, he never resorts to *vacuum* to establish the technical intensity of his term. *Inane* occurs chiefly in Cicero as ἀναφής φύσις and κενόν. It is to be observed that the shift of the word to the meaning of τόπος or χώρα, according to the definitions of Sextus emp., is more frequent, in proportion to the number of occurrences of the word, in Cicero than in Lucretius. In the terms and expressions treating of space is seen conspicuously Cicero's failure to develop a rigorous and definitive terminology.

1. Inane.

a. Inane = ἀναφῆς φύσις (Gesamtraum).

(1) Ac. II 118, **plenum et inane**. Here Cicero seems to regard **inane** as the positive element and **plenum** as its negative. The only passage like it in Lucretius is I 525-6.

(2) N.D. I 73, **Dicit eadem, atomos, inane, imagines, infinitatem locorum**, etc. The statement is inaccurate, as the atoms and void alone are primary substances, all else being derived from them.

(3) N.D. II 82, **omnium, quae sint, naturam esse corpora et inane quaeque his accidunt**. The same inaccuracy occurs as in the preceding passage. The *συμβεβηκότα* are secondary and derivative.

(4) Fin. I 21, **Atomi, inane, imagines**. Note the same error.

b. Inane = κενόν (Raumtheil).

(1) Ac. II 125, **Tunc aut inane quicquam putes esse, cum ita completa et conferta sint omnia, ut quidquid movebitur corporeum cedat et quae quidque asserit aliud ilico subsequatur**. Cf. Arist. Phys. 4, 7, 214^a 24 sq.; Lucr. I 370.

(2) N.D. I 65, **ita nullum inane, nihil esse individuum potest**.

(3) Ac. II 121, **interiecto inani**. This expression is much neater than the Lucretian **inane genetis in rebus**.

(4) N.D. I 54, **interiecto inani**.

c. **Inane** = τόπος (χώρα according to Sextus).

(1) Fa. 24, **cum per inane moveatur gravitate et pondere**.

(2) Fin. I 17, **Ille atomos . . . censet in infinito inani**. Cf. Diog. Laert. X 42, ἀν . . . ἐφέρετο κατὰ ἄπειρον κενόν. No literal translation appears in Lucretius.

(3) Fa. 47, **in illo inani, per quod feratur atomus**.

(4) Fa. 18, **Cum duo individua per inanitatem ferantur**. **Inanitas** is one of Cicero's characteristic abstractions metrically impossible in Lucretius.

2. Vacuum.

The word does not occur either as substantive or adjective with a technical sense in Cicero. Nor do **vacare**, **vacans**, **vacuitas** appear in any such connection.

3. Locus.

The occurrence of **locus** as a philosophical term in Cicero is very rare. When it appears it is equivalent to space, τόπος.

(1) N.D. II 42, **Sidera autem aetherium locum obtinent**. The example is not strictly technical. The meaning, however, seems to be space.

(2) N.D. I 73, **atomos, inane, imagines, infinitatem locorum**. **Infinitas locorum** is space, extension, room, for the motion and operations of matter.

Other occurrences of the term show merely the ordinary uses of the word.

4. **Spatium**.

No clear-cut, technical meaning attaches itself to **spatium**. It seems to divide loosely with **locus** the idea of space, N.D. I 21, 22.

CHAPTER III.

THE UNIVERSE. THE INFINITY OF MATTER, OF VOID AND OF SPACE.

I.

THE TERMINOLOGY OF EPICURUS.

THE evidence of the Greek is exceedingly meager. Indeed, in the large controversial literature concerning the subject in Lucretius, I find this side of the subject scarcely considered. Even Brieger, who of all Lucretian critics appeals most frequently to the Greek, seems to find the sources on this point too slender for serious consideration as contributory to Lucretian interpretation. A résumé of the available Greek is therefore in point, if merely to show the limitations of the subject.

1. $\tauὸ \piᾶν$. The term occurs first in Diog. Laert. X, 39, 40. The text of the passage is defective. Usener's reading seems most logical. The definition of $\tauὸ \piᾶν$, to judge from the latter

part of the passage, which resolves τὸ πᾶν into its elements, must be understood as including the whole sum of matter and space. This meaning is further confirmed by Id. 86, οἶον τὸ πᾶν σώματα καὶ ἀναφῆς φύσις ἐστὶν κτλ. The text is here also uncertain. Nevertheless the reading of either σῶμα or σώματα (Us.) would involve the essential sense of τὸ πᾶν claimed for it in the previous passage. The question of the reading involves merely that of a reference to the atomic constitution of matter (σῶμα or σώματα). To the evidence of these passages may be added that of a quotation preserved in Sextus emp. adv. dogm. III (Math. IX) 333, Us. p. 125. The term occurs again in Plut. adv. Col. 13, p. 1114^a, Us. p. 211. Here the meaning is not defined. It might be the whole of space or the whole of matter or of both together. The same is true of Plut. adv. Col. 11, p. 1112^e, Us. p. 125.

We conclude that where the meaning of τὸ πᾶν is clearly defined it means the whole sum of matter and space, *i.e.* the universe.

2. τὸ ἄπειρον. The meaning of this term when used as a substantive is loose and indefinite. In Diog. Laert. X, 60, the meaning

is that of infinite space. Again, in Id. 73, the sense seems to be that of the infinite store of matter. And still again, in Id. 143, the meaning is the universe, the infinite store of matter and space or τὸ πᾶν. Compare also the passage Diog. Laert. X, 88. Lastly, in a citation from Aetius, the term again appears in the sense of infinite space, Aet. II 1, 3, p. 327 D. (Plut. II 1, 1 Stob. ecl. ph. 22, 3), Us. p. 213.

3. ἀπειρία. The evidence of the fragments of Epicurus is not sufficient to determine the use of the term. The meaning seems to be that of abstract infinity of number in Diog. Laert. X, 45. It is infinity of space in Id. Ad Pyth. 116.

4. τὸ περίεχον appears as a loose term for space in its extensive sense. Cf. Diog. Laert. X, 46, 48. The term can scarcely be regarded as a technical one. I find no counterpart for it in Cicero or Lucretius.

II.

THE TERMINOLOGY OF LUCRETIVS.

The magnificent Epicurean conception of the infinity of space, matter and worlds in being, produced in the poem of Lucretius a wealth of

terms and phrases for the whole of void, the universe of matter and space, the whole sum of things in being, and this system of ours distinguished from the countless worlds of outer space.

For the infinite space we find such expressions as the following:¹ *summa loci*, II 1044; *natura loci spatiumque profundi*, I 1002; *quod inane repertumst seu locus ac spatium, res in quo quaeque gerantur*, I 954, etc.; *loci copia*, V 359; *omne quod est spatium*, I 523, 969; *spatium summai totius omne*, I 984; *spatium sine fine modoque est*, II 92; *spatium vacet infinitum*, II 1053; *desertum spatium*, I 1110; *summa profundi*, VI 485, II 1095; *natura profundi*, II 1051; *totum inane*, III 17.

The frequent occurrence of *spatium* in these expressions does not shake our position that *locus* (τόπος) is the term of Lucretius for space, room, considered absolutely. It is true that *spatium* appears frequently when the idea of infinity is added to the meaning of space; but, in that case, with the exception of II 92, the word is further qualified either by adjective or phrase. We have not, for instance, *spati*

¹ Cf. Hoerschelmann, *Obs. Alt.* p. 37.

copia or **summa spati**, either of which would be metrically possible through separation.

The infinite sum of matter is designated in Lucretius by **summarum summa**, V 361; **infinita vis materiai**, I 1051; **materies rerum**, I 705; **summa materiai**, II 527; **summa**, I 436; **rerum summa**, I 1008.

For the universe of matter and space, Lucretius has **omne**, II 305; **summa omnis**, I 621; **summa summai totius omnis**, VI 679; **summa summarum**, V 361; **omnia**, I 1011; **summa tota**, VI 650; **summa**, I 963; I 1053; **omne quod est**, I 958.

The large controversial literature that has arisen over the interpretation and order of the difficult passage I 958-1051 is of interest to us only in that it has brought into question the precise meaning of **omne**. The controversy began actively with Goebel¹ and for over fifty years has been the battle-ground of the most acute logomachy of the Lucretian critics. The text has not yet been securely constituted.²

¹ *Observ. Lucr.* 1854.

² See Brieger's last word, *Philologus*, 1901, pp. 510 ff. He finally abandons an attempt to settle the order and groups the various proofs according to the guidance of the *Leitwörter* in their generally accepted meaning.

I will touch upon the question, in this inquiry, only so far as it is necessary in order to determine, if possible, the meaning of **omne**.

Three meanings are advanced for the term.

1. **Omne** is equivalent to **omne quod est spatium**. It signifies the whole of space.¹ 2. **Omne** signifies the whole of matter. It includes, not the idea of universal space, but only so much as forms the necessary medium for the existence and operations of matter,² **inane repertumst | seu locus ac spatium, res in quo quaeque gerantur**.³ 3. **Omne** means the whole sum of matter and space. This is the view of the majority of Lucretian scholars. Let us consider briefly these three suppositions.

1. **Omne** is a shorter expression for **omne quod est spatium**. As I have not seen the discussion of Stürenburg, but know it only through mention by Hoerschelmann, Gneisse and Brieger, it is sufficient and appropriate to quote

¹ Cf. H. Stürenburg, *Acta Soc. Lips.* II s. 413, who admits, however, that in I 958 ff. **omne**=the universe. In other passages he claims for it the meaning **omne quod est spatium**.

² C. Gneisse, *Neue Jahrbücher*, 1880, No. 114. *Der Begriff des omne bei Lucretius*. ³ *Lucr.* I 954-5.

the adequate refutation of Hoerschelmann.¹

“Postremo Stuerenburgio contradicendum est, qui p. 413 Lucretium pro **omni spatio** brevius **omne** dixisse arbitratur. Hoc enim aliter explicandum est. **Omne** et **spatium universum** cum eodem ambitu sint, non semper referre, de utro dicas, manifestum est: ac primum si de magnitudine alterutrius agitur, utrumque aptum esse exposui; tum si de eis, quae intra utrumque geruntur, disputatur, non aliter rem comparatam esse elucet, cum intra et **omne** et **spatium omne** fieri, quaecumque fiunt, per se appareat. Quare quod I 1024 legimus **multa modis multis mutata per omne** vexari, II 547 **corpora unius genitalia rei per omne** iactari, V 530 **motus astrorum per omne**, II 305 **genus ullum materiai effugere ex omni**, denique II 1108 **mundo creato postea esse addita semina, quae magnum iaculando contulit omne**, haec aptissime dicta sunt, etiamsi sensu proprio **omne** adhibitum esse statueris; id autem, quod ultimo loco posui, ne potest quidem ad spatium referri, nisi omni ratione Lucretii et doctrina turbata. Brieger, however, takes reasonable

¹ Obs. Alt. pp. 39, 40.

exception to the extreme view of the latter part of the statement.”¹ Hoerschelmann’s claim for the absolute interchangeability of the terms brings him dangerously near to the identification of **omne** with **omne quod est spatium**, which he is refuting.

2. **Omne** means the whole sum of matter. It includes, not the idea of universal space, but only so much as forms the necessary medium for the existence and operations of matter. “From a comparison of the passages in which Lucretius uses **omne** C. Gneisse² concludes that the common interpretation of this word as meaning the universe, *i.e.* the sum of all existence and of all space, is incorrect; that Lucretius does not include in that term **omne quod est spatium**, but that where he intends to include space in his conception of the universe he uses **summa summarum** or **summa tota**.”³ I find four grounds of objection to Gneisse’s arguments for this interpretation.

a. The argument from an assumption of the

¹ Philologus, 1901, p. 527.

² C. Gneisse, Neue Jahr. fur Phil. 1880, Der Begriff des omne bei Lucretius.

³ Report on preceding article in A. J. P. VII 533.

accustomed order of Lucretian proof from matter to void, and hence in this case from all matter to all space, is unsound. Gneisse has insufficient ground for the induction.

b. Gneisse is under the necessity of claiming, in order to prove the mutual exclusion of **omne** and **omne quod est spatium**, that Lucretius concludes the infinity of **omne** in spite of the postulated finiteness of space, I 968-983,

“Praeterea si iam finitum constituatur
Omne quod est spatium, si quis procurrat ad
oras,” etc.

He concludes that therefore Lucretius did not ascribe the same extension to both. If he had done so, the assumption of the finiteness of one would involve the finiteness of the other. But such a distinction in extension seems to me to be absolutely unthinkable. The intent of the argument, 968-983, is quite different. We have here a negative form of proof. The conclusion drawn from the assumption in turn negates the hypothesis and establishes the fact, **infinitum igitur est omne quod est spatium**. The proof of this truth demonstrates in turn the infinity of the **omne**,

"omne
cogit ut exempta concedas fine patere."

The essential link in the proof is that **omne** and **omne quod est spatium** are coterminous.¹

c. Gneisse's definition of **omne** includes **inane**, **res in quo quaeque geruntur**. It is difficult to see how this definition does not practically include the whole universe of matter and space. For if matter is infinite in its mass and if all the atoms and things in being have as the condition of their being that **inane** shall be in them in the case of **res** and about them in the case of both **res** and **primordia**, it is an irresistible conclusion that the substance **inane res in quo quaeque geruntur**, since it is coextensive with infinite matter, should be itself infinite in its extension. It is also in point, just here, to express some surprise that Gneisse found no enlightenment in the Greek of Epicurus on this matter. He has accepted the reading τὸ πᾶν ἐστι σῶμα. τὰ μὲν γὰρ σώματα ὡς ἔστιν κτλ. Diog. Laert. X 39. His conjecture, καὶ κενόν, gives the same basis essentially for argument

¹ Hoerschelmann, Obs. Alt. 39, 40.

on this point as that of Usener, Ἀλλὰ μὴν καὶ τὸ πᾶν ἐστὶ (σώματα καὶ τόπος) σώματα μὲν γὰρ ὡς ἔστιν κτλ. Now Gneisse admits that the **omne** of Lucretius, nowhere specifically defined, corresponds with the τὸ πᾶν of Epicurus, which Gneisse himself constructs as equivalent to σῶμα καὶ κενόν. The infinity stated in τὸ πᾶν requires for the truth of the equation the infinity of at least one of the elements constituting its sum. Gneisse acknowledges the infinity of σῶμα. As we have seen, the conditioning circumstance of the existence and operations of σῶμα require that **inane** be admitted into the scope of the term τὸ πᾶν. Once admitted, it is the irresistible conclusion that it must be admitted in its universal aspect or, in other words, τὸ πᾶν ἐστὶ τὰ ἄπειρα σώματα καὶ τὸ ἄπειρον κενόν.

d. Gneisse regards as the soundest proof for his interpretation of **omne**, the fact that his definition supplies the best sense in the passages in which the term occurs. This assumption is not supported by the facts. Notably in V 526 ff. the term **omne** in the sense of the universe alone satisfies the demands of the context. It is only through a violent contortion of

the synthesis, taking **causas** with **per omne**, that Gneisse creates any probability for his definition.

3. **Omne** signifies the universe, that is to say, the whole sum of matter and space. I stand therefore decidedly with Brieger, Munro, Giussani, Hoerschelmann and the majority of Lucretian scholars, for the accepted meaning of the Lucretian **omne** in the sense of the universe of matter and space. The grounds of this decision have already been suggested in the course of the preceding discussion. They are, namely, the authority of the Greek of Epicurus and the adaptability of this meaning to the passages in which the term occurs.¹

For the sum of things in being we have **summa rerum**, I 333, 619, 756; II 75; **natura rerum**, I 25, 950; **summa omnis**, I 1042; **summa**, I 636; II 71, 310, 1077; **copia rerum**, I 757.

Finally, for this world of ours occur **haec rerum summa**, I 235, 1028; **hic mundus**, V 526; **rerum summa**, VI 606 (= **haec rerum summa**).

¹ Hoersch. Obs. Alt. 39, 41. Cf. Lucr. I 74, 419, 521, 958, 975, 987, 1011 (**omnia**), 1024; II 305, 547, 1108; V 530.

III.

THE TERMINOLOGY OF CICERO.

The careful analysis of Lucretius in his use of terms in this group does not appear to the same degree in Cicero. The latter's references to the subject are in the nature of brief allusions, not formal expositions. In Lucretius we find a threefold infinity, of matter, of space, and of the universe. The terminology of Cicero falls into two groups, neither of which is defined with perfect precision. These groups are the infinity of space and the infinity of matter and space, *i.e.* the universe.

To the former group, the infinity of space, belongs the sonorous phrase, **haec immensitas latitudinum, longitudinum, altitudinum**, N.D. I 54; also **infinitas locorum**, N.D. I 73; and again **infinio ipsa quam ἀπειρίαν vocant**, Fin. I 21.

As rough equivalents for the universe of matter and space we may choose **universitas rerum, universum, universus mundus**, N.D. I 120, **omnis mundus**, Id. II 16; **mundus**, Id. II 19, 21; **natura rerum omnis**, Id. I 27; **omnis natura**, Id. II 35;

universa natura, Id. II 35; **res universae**, Ac. II 87; **infinitas naturae**, Ac. II 118.

Cicero's term for this system or world of ours is **hic mundus**, Ac. II 119. **Mundus** was the Epicurean term for the earth, moon and heavenly bodies visible, as opposed to the other systems and worlds of the **omne** inferred by reason. The Stoics used **mundus** in the general sense of the universe. Thus as Lucretius converts his general term for the universe, **summa rerum**, into **haec summa rerum** to denote our visible world, in the same way Cicero treats the finite, Stoic **mundus**.

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¹ This list is in no sense a complete bibliography of the books consulted in examining the subject. It is intended merely to contain the titles of the works to which special reference is made in this volume.

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